SERVICE MANUAL A-3440

4-Channel Multitrack Tape Deck with SIMUL-SYNC

TEAC CORPORATION
51032380

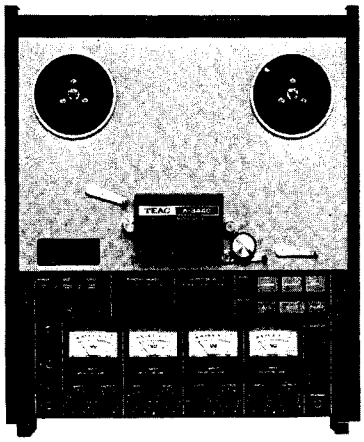
1. GENERAL DESCRIPTION

The TEAC A-3440 is a 4 channel, multi-track open reel tape deck which operates at 15 ips and 7-1/2 ips.

The A-3440 is a development of the well known A3340S and shares many features in common. Specifically, the transport section is virtually the same though there has been extensive redesign of the controls and the electronics. The FUNCTION SELECT switches, together with the OUTPUT SELECT switches provide instant selection of source, sync and normal off-tape monitoring. There is a rear panel interface for the RX-9 DBX noise reduction unit, the use of which will greatly improve the dynamic range and signal to noise performance of the deck.

The A-3440 is ideally suited to the requirements of the musician and multi-track recordist.

If any of the procedures in this manual are not sufficiently clear, or seem too difficult to undertake, we suggest you contact your nearest TEAC Factory Service Department or write directly to the TEAC Corporation. TEAC addresses are printed on the back cover of this manual.



– TABLE OF CONTENTS –

1. GENERAL DESCRIPTION 3
2. SPECIFICATIONS AND SERVICE DATA 4
3. TOOLS FOR TESTING AND MAINTENANCE . 5
4. PARTIAL DIS-ASSEMBLY 6
5. TAPE TRANSPORT PARTS LOCATION 9
   – Rear View –
6. HEAD REPLACEMENT AND ALIGNMENT ... 10
   – Mechanical –
7. MEASUREMENT AND ADJUSTMENT 12
   – Mechanical –
8. MEASUREMENT AND ADJUSTMENT 16
   – Electrical –
9. SERVICING AND MAINTENANCE 23
10. SIMPLIFIED SCHEMATIC AND LEVEL DIAGRAMS 24
11. TEAC DECIBEL TABLES 25

2. SPECIFICATIONS AND SERVICE DATA

2-1 SPECIFICATIONS

Track System	4 channel Multi-track SIMUL-SYNC
Heads	Erase, Record/Sync and Playback
Reel Size	10-2/1" and 7"
Tape Speed	15 ips and 7½ ips
3 Motors	1 DC-Servo Capstan Motor 2 Eddy current induction Reel motors
Inputs (Level and Impedance)	MIC: Specified; −60 dB (775 μV)/10k ohms Minimum; −70 dB (245 μV) MIC (ATT = 0 dB) position LINE: Specified; −12 dB (195 mV)/50k ohms Minimum; −22 dB (61.5 mV)
Outputs (Level and Load Imp.)	LINE: Specified; − 8 dB (308 mV)/10k ohms Maximum; − 2 dB (615 mV) HEADPHONE: −19 dB (86.9 mV) /4 ohms, one channel ON (MONITOR VR Max.) − 6 dB (388 mV)/4 ohms, all channels ON SIMUL-SYNC Out: − 8 dB (308 mV)/10k ohms
Playback Equalization	15 ips: 3180 μs + 50 μs 7½ ips: 3180 μs + 50 μs
Bias Frequency	100 kHz ±5 kHz (push-pull oscillator)
Power Requirement and Consumption	

Model	Voltage (V)	Frequency (Hz)	Consumption (W)
General Export	100/117 220/240	50/60	125
EUR	220	50	120
UK/AUS	240	50	120
USA/CND	117	60	125

Weight	24 kg (53 lbs) net
Dimensions (WHD)	445 x 523 x 235mm (17½" x 20½" x 9¼")

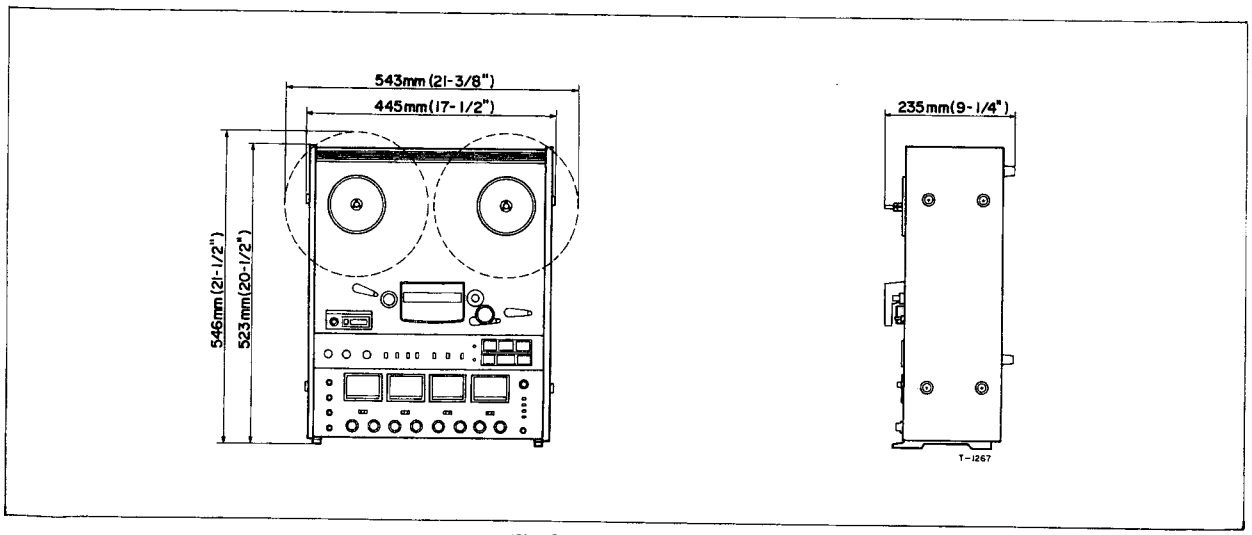


Fig. 2-1 Dimensions

2-2 SERVICE DATA –MECHANIAL–

Tape Speed Deviation and Drift	3000 Hz ±30 Hz, within 15 Hz
Wow and Flutter	Playback: 0.10% (WRMS) at 15 ips 0.12% (WRMS) at 7½ ips Overall: 0.15% (RMS) at 15 ips 0.18% (RMS) at 7½ ips
Pinch Roller Pressure	2.2 kg (4.8 lbs)
Reel Torque	Take-up: LARGE 770 to 830 g-cm (11 to 12 oz-inch) SMALL 370 to 410 g-cm (5.2 to 5.7 oz-inch) Back Tension: LARGE 330 to 390 g-cm (4.6 to 5.5 oz-inch) SMALL 180 to 220 g-cm (2.5 to 3.1 oz-9nch)
F.F./REW Torque	2000 g-cm or more (28 oz-inch)
Brake Torque	1400 to 1800 g-cm (20 to 25 oz-inch)
F.F./REW Time	140 seconds for 1800 ft tape

2-3 SERVICE DATA –ELECTRICAL–

Frequency Response	Refer to Frequency Response Limits charts on page 18, 20 and 22.
Signal-to Noise Ratio	Overall: 45 dB at 15 ips 46 dB at 7½ ips Playback: 50 dB at both speeds SIMUL-SYNC: 40 dB at both speeds
Erase Efficiency	65 dB at 1 kHz signal (Meadurement with input 10 dB higher than the specified Input level)
Stereo Channel Separation	40 dB channel to channel at 1 kHz signal
SIMUL-SYNC Channel Separation	45 dB channel to channel at 1 kHz signal
SIMUL-SYNC Crosstalk	8 dB, or more.
Total Harmonic Distortion	Overall: 1.0% at 1 kHz signal at 0 VU

NOTE: As a result of containing changes and improvements during the production run, minor differences may be found between early and later machines.
Value of "dB" in this manual refers to 0 dB = 0.775 V.

3. TOOLS FOR TESTING AND MAINTENANCE

A minimum of the following tools and test instruments are required for measuring and adjusting to obtain optimum performance. Regular maintenance tools will be adequate for those not listed here. If any test instrument listed here is not available, a close equivalent can be used.

SPRING SCALE:	0–4 kg (0–8 lbs) 0–300 g (0–10 oz)
FLUTTER METER:	Meguro Denpa Sokki K.K., Model MK-668C
DIGITAL COUNTER:	Range; 0 Hz–100 kHz
BANDPASS FILTER:	TEAC MODEL M-206A (1 kHz)
VTVM (AC):	Hewlett-Packard Co., Model 400E
AF OSCILLATOR:	10 Hz–100 kHz
ATTENUATOR:	General purpose
OSCILLOSCOPE:	General purpose
BLANK TAPE:	TEAC YTT-8013
TEAC TEST TAPE:	YTT-1004 (15 ips), YTT-1003 (7½ ips) for Playback Alignment test. YTT-2003 (7½ ips), YTT-2004 (15 ips) for Tape Speed and Wow and Flutter test.
TEAC EMPTY REEL:	RE-702 (2.5" dia. hub) RE-701 (4" dia, hub)
TOOLS:	2 mm nut driver, Hex Head Allen Wrench, Plastic alignment tool, Load resistor non inductive type 4 ohm/1 W.
DEMAGNETIZER:	TEAC E-3 or equivalent.

4. PARTIAL DIS-ASSEMBLY

4-1 OUTER CASE AND PANEL REMOVAL

Remove panels as required as shown in the illustration.
Unplug the power cord before removing any panel or internal part.

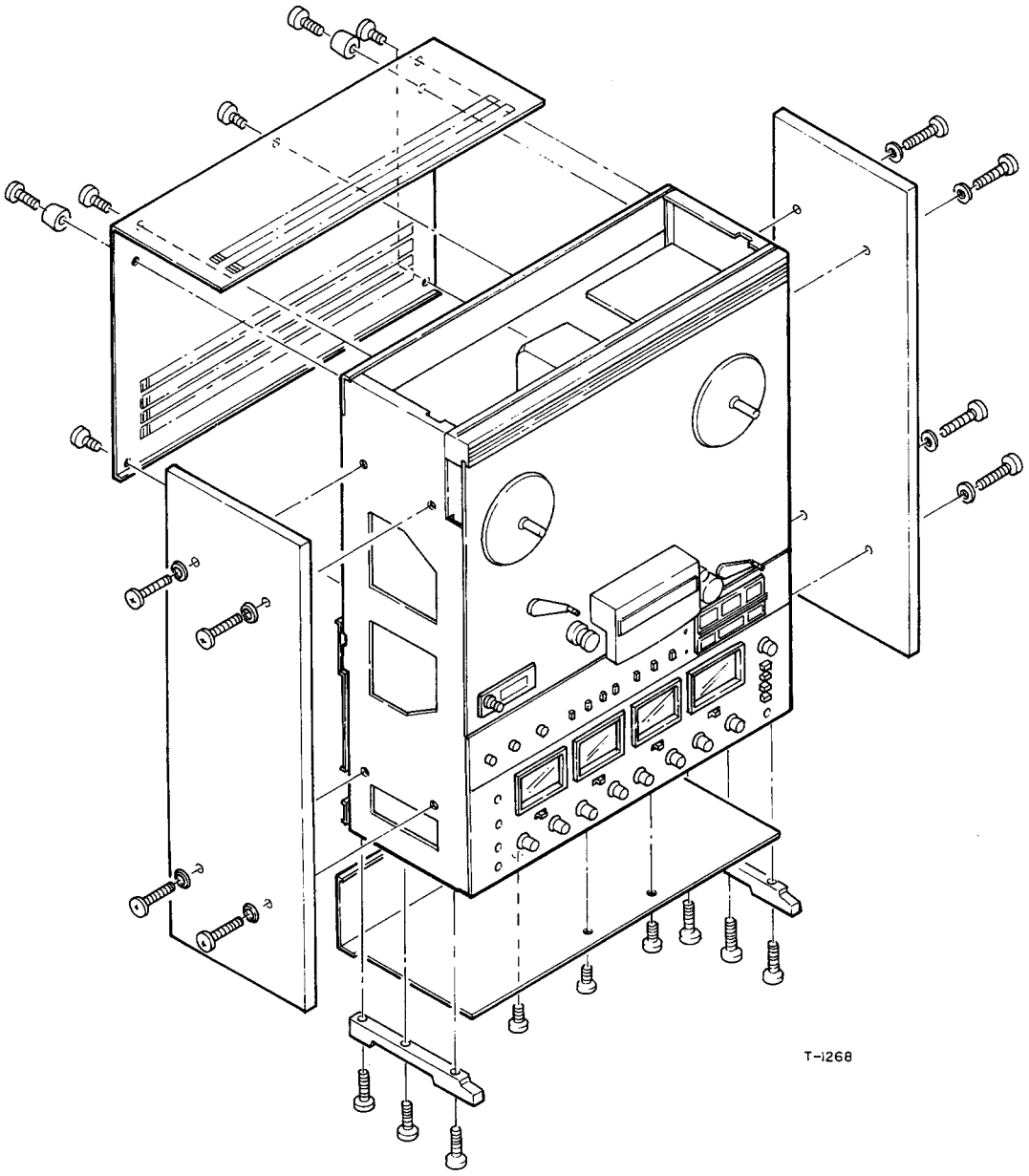
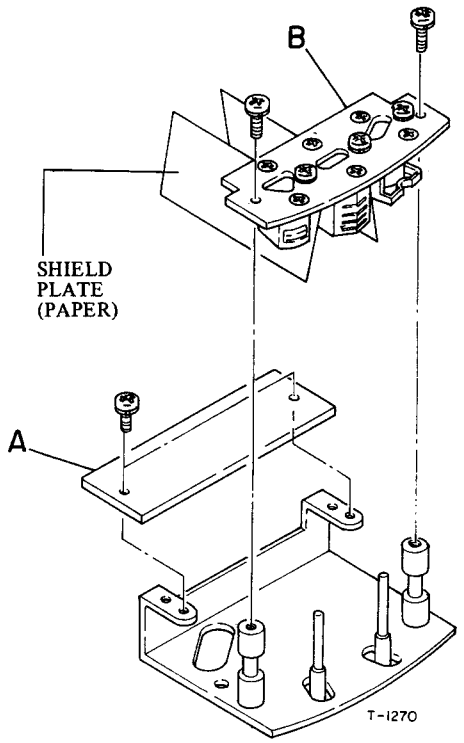


Fig. 4-1 Outer Case and Panel Removal

4-2 HEAD ASSEMBLY REMOVAL

1. Remove the 2 screws in the top of the head Cover and lift it off.
2. Remove 2 screws holding Head P.C.B. (A).
3. Remove 2 screws holding Head Base Plate (B) (with head).
4. Remove 2 mounting nuts through access slot in head base plate and dis-connect head wire. Refer to page 10 and 11.



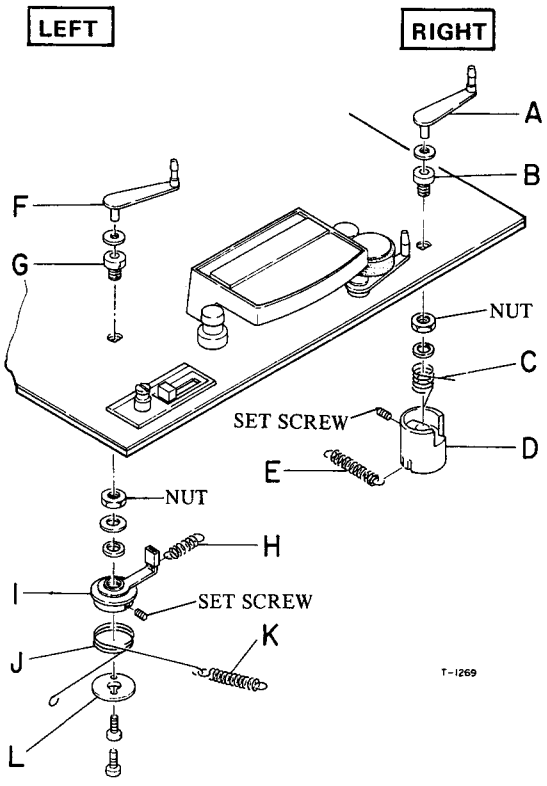
4-3 TENSION ARM REMOVAL

– RIGHT TENSION ARM –

1. Remove Spring (E) from Switch-off Drum (D).
2. Remove set screw holding Switch-off Drum (D), and remove (C) and (D).
3. Remove NUT holding Right Arm Holder (B), and lift off Right Tension Arm (A).

– LEFT TENSION ARM –

1. Remove 2 screws holding plate (L) and Lift off Friction spring (J) and spring (K).
2. Remove spring (H) from Tension Arm Stopper (I), and remove Tension Arm Stopper by set screw.
3. Remove NUT holding Left Arm Holder (G), and lift off Left Tension Arm (F).

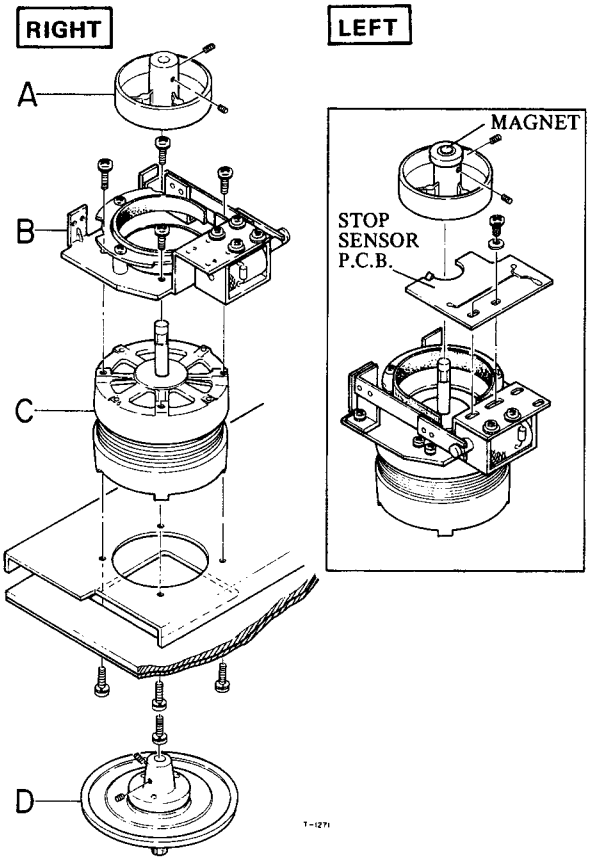


4-4 REEL MOTOR REMOVAL

1. Remove Power from Deck.
2. Remove wooden side panels by removing 4 mounting screws each.
3. Loosen 2 set screws (Hex head) in Reel Turntable ass'y (D) and in the Brake Drum (A). Lift off parts.
4 Disconnect the 4 motor wires from terminals and release wire harness straps.
5. Remove 4 screws securing the Brake Ass'y (B) to motor.

   NOTE: Take care not to bend the brake band or brake retainer during removal.
6. Remove 4 screws securing Reel motor (C) to chassis through the front panel.

NOTE: When replacing the LEFT Reel motor Refer Right illustration.



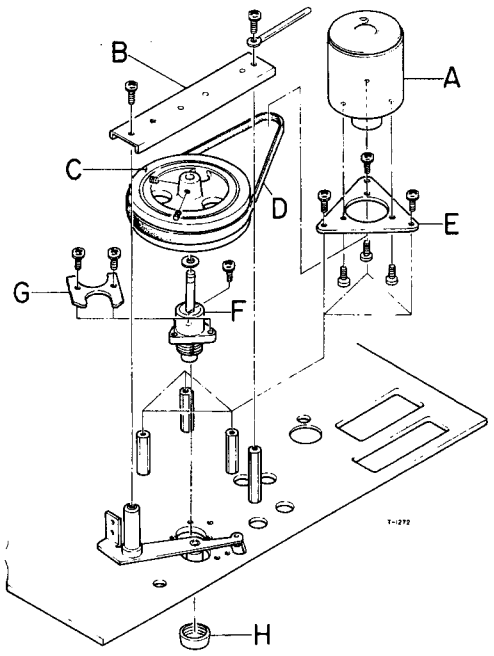
4-5 CAPSTAN MOTOR, FLYWHEEL AND CAPSTAN ASS'Y REMOVAL

1. Unscrew (by hand) the capstan dust cap (H).
2. Remove 2 screws from capstan thrust angle (B) and remove it.
3. Remove flywheel (C) by loosening 2 hex head set screws and removing drive belt (D).
4. Remove Capstan motor (A) with (E) by removing 3 screws.
5. Disconnect 3 screws to Capstan motor from P.C.B.

– CAPSTAN ASS'Y REMOVAL –

6. Remove Arm Support Plate (G) and capstan ass'y (F) by removing 3 screws.

NOTE: When replacing parts make sure belt and capstan shaft are clean and free of oil.



5. TAPE TRANSPORT PARTS LOCATION

– REAR VIEW –

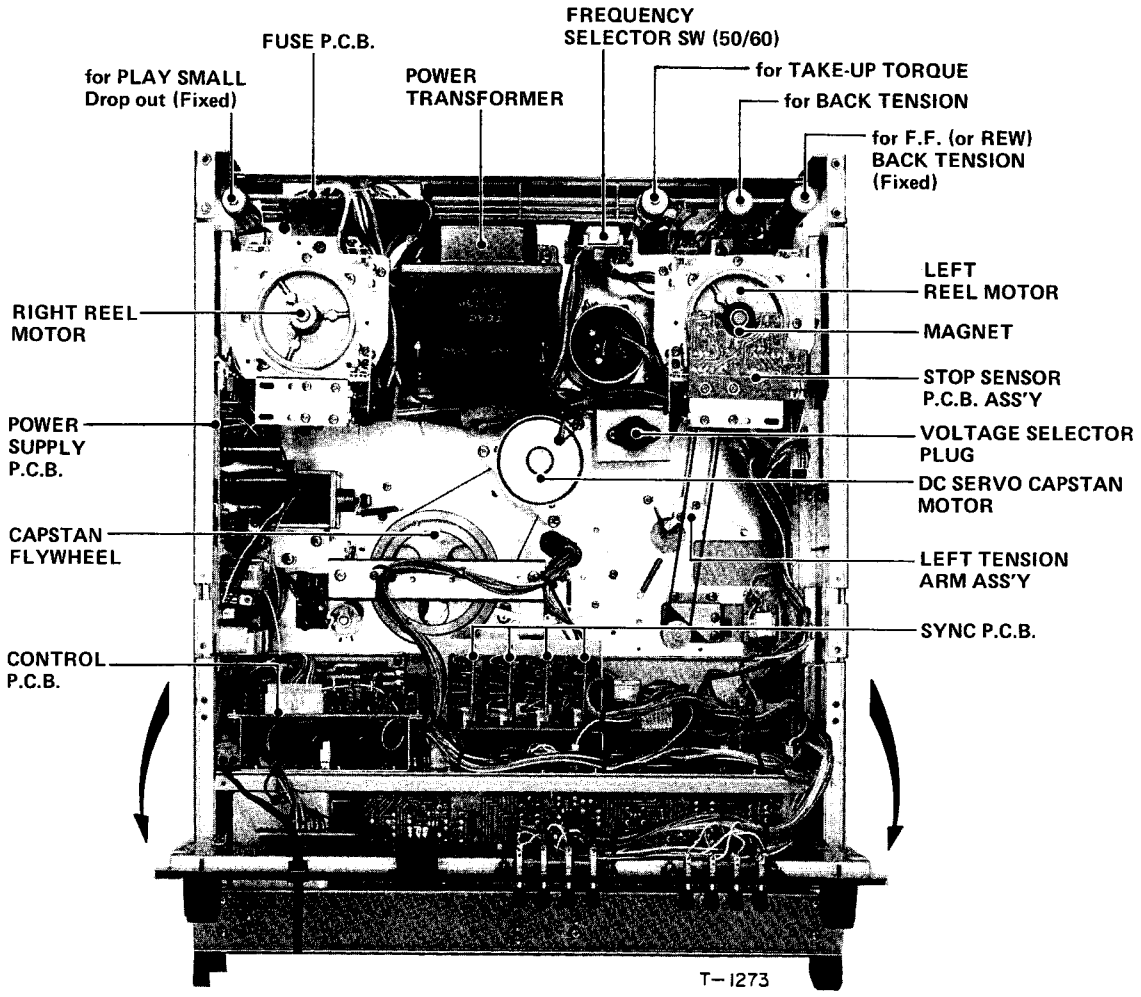


Fig. 5-1 Tape Transport Parts Location

6. HEAD REPLACEMENT AND ALIGNMENT
– MECHANICAL –

6-1 HEAD REPLACEMENT

To replace a single head a special 2 mm nut driver is required. Remove the 2 nuts (A) on the defective head through the access hole provided. This releases the head from the mounting plate. Note the position of the wires on the circuit board. Connect the new head in the same manner. Replace the nuts securing the new head to the plate. Perform head alignment before operation.

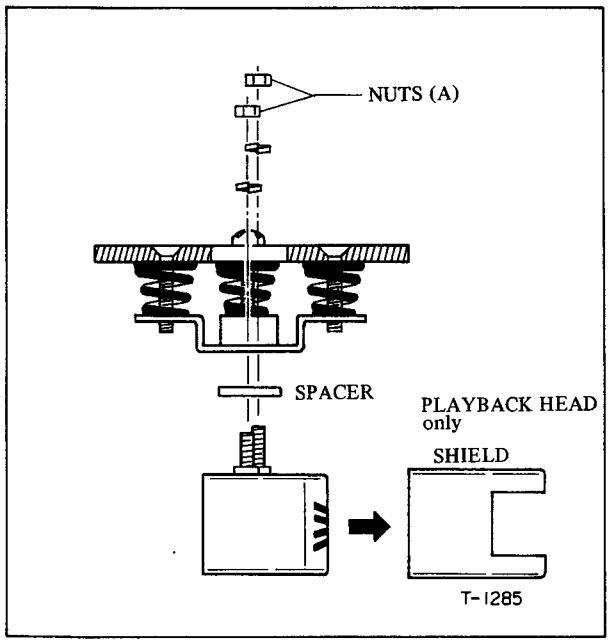


Fig. 6-1 Head Replacement

6-2 HEAD ADJ. SCREWS AND ALIGNMENT

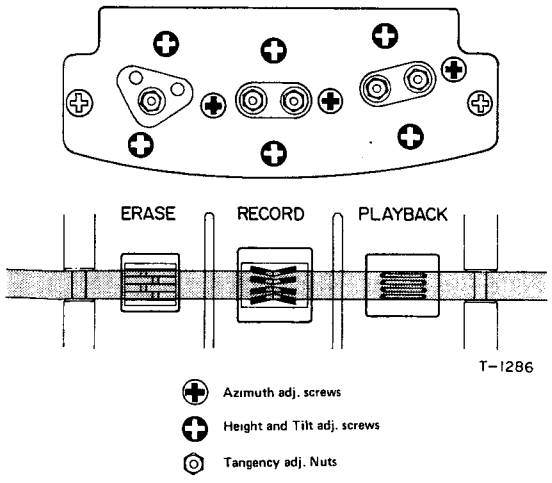


Fig. 6-2 Head Adjustment Screws and Alignment

6-3 VISUAL HEAD ALIGNMENT

Since the head alignment critically affects the frequency response on both playback and recording, the head alignment should be done carefully. The head can be adjusted for TILT, TANGENCY, HEIGHT and AZIMUTH.
For head alignment, perform the following coarse adjustments first. Then fine alignment should be accomplished electrically while playing back the Test Tape.

Coarse Adjustment:
Without Tape
TILT . . . . . By Height and Tilt screws
This alignment is performed by viewing from the side without tape threaded.
Check that the head surface is parallel to the tape guide surface.
With Tape
TANGENCY . . . . . By Head mounting nuts
Loosen the head mounting nuts. Adjust the head so that the vertical alignment of the head gap is perpendicular to the surface of the tape, then tighten the head mounting nuts.
HEIGHT . . . . . By Height and Tilt screws
This alignment is checked visually by looking at the position of the head.
The head core for track-1 (inner core) should be even with the inner edge of the tape.
AZIMUTH . . . . . By Azimuth adj. Screw
Adjust the azimuth adj. screw so that the gap of the head is perpendicular to the tape travel.

NOTE: After this coarse adjustment is made, the adj. screws and the Head mounting nuts should be realigned according to the electrical head alignment paragraph which follows in this Service Manual.

6-4 MIS-ALIGNMENT OF THE HEADS

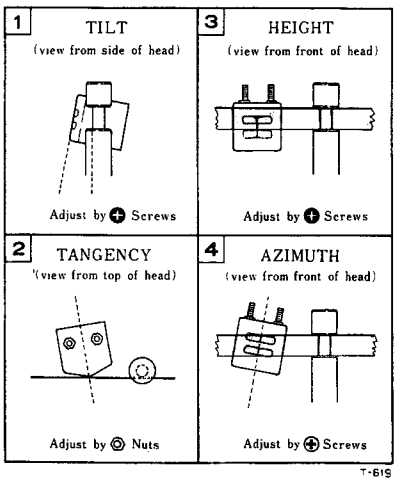


Fig. 6-3 Head Mis-Alignment – Examples –

–HEAD WIRING–

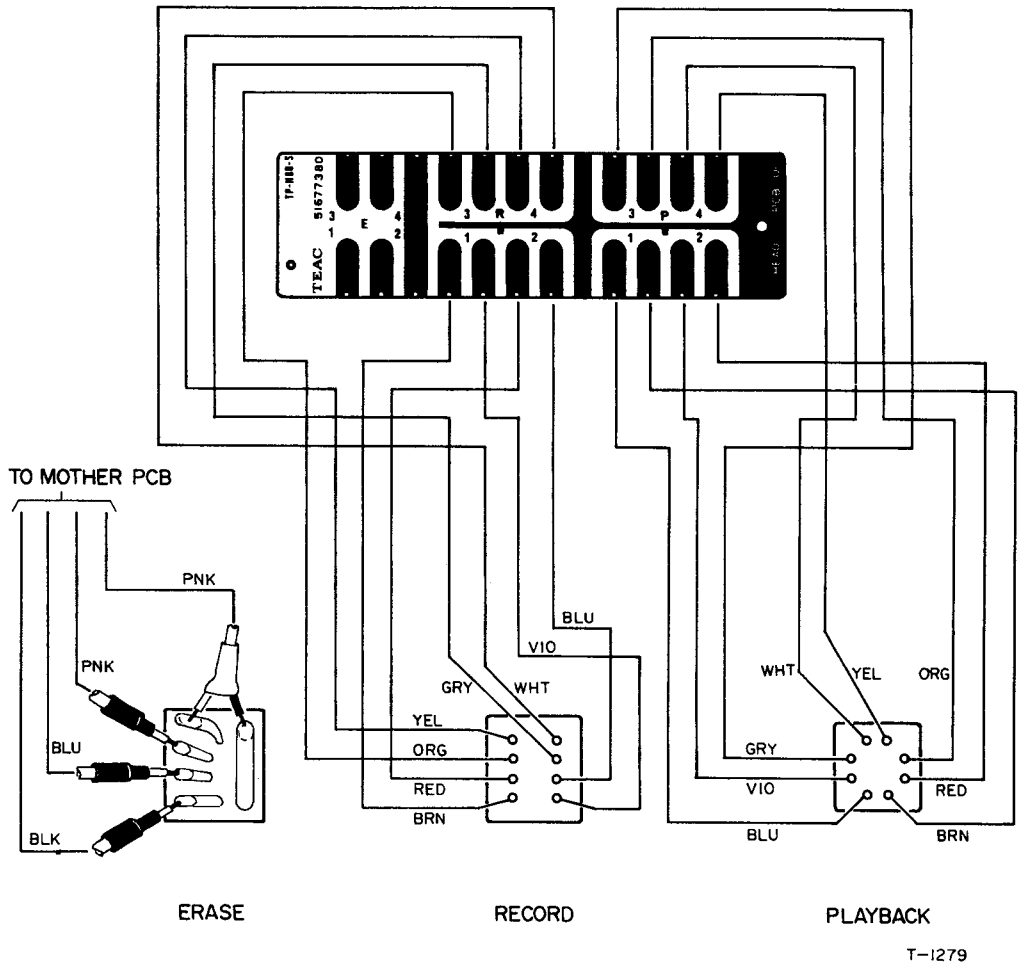


Fig. 6-4 Head Wiring

7. MEASUREMENT AND ADJUSTMENT
– MECHANICAL –

7-1 PINCH ROLLER PRESSURE CHECK

NOTE: Pinch roller pressure is suppled by the pinch roller spring arms and it is most important that the solenoid plungers be fully bottomed before taking pressure measurements.

1. Load tape or block the shut-off arm in the ON position.
2. Attach a suitable spring scale to the pinch roller shaft.
3. Place the deck in the Play (▶) mode, and holding the spring scale as illustrated, slowly draw it away from the pinch roller.
4. Do not allow the spring to rub against the pinch roller.
5. Note the reading on the spring scale at the instant the pinch roller stops rotating.
6. The scale should indicate 2.1 to 2.3 kg (4.6 to 6.0 lbs).
7. If adjustment is necessary, loosen the 3 screws on the capstan solenoid and position the solenoid for optimum pressure.
8. Adjust solenoid-limit position so that the gap between capstan shaft and pinch roller is approx. 6 mm when solenoid is not actuated. Also make sure pinch roller shaft does not contact Spring Arm (B). Limit is adjusted by loosening the mounting screw (A), then sliding until proper position is obtained.

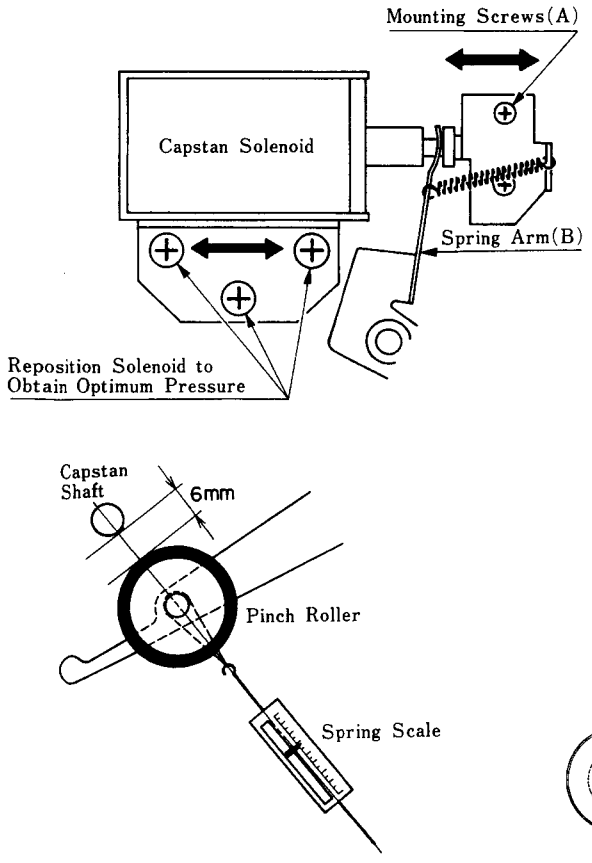


Fig. 7-1 Pressure Measurement and Adj. Location

7-2 BRAKE TORQUE MEASUREMENT

Brake torque measurement is made with Power OFF.

NOTE: The brake torque is actuated mechanically. Torque is set by the variable leaf spring force. While making these measurements and adjustments, be careful not to be bent the brake bands.

Preliminary Adjustments

1. Loosen the screws marked (A) and (B) in the figure and then push the solenoid plunger until it is fully bottomed in the solenoid. At this time adjust the brake solenoid for minimum clearance between Brake Arm and Solenoid Plunger. Then tighten four screws (B). Then, while the plunger is fully bottomed, adjust the position of the Brake Band Space Ass'y so that there is a clearance between the Brake Band and the surface of the Brake Drum. Then tighten two screws (A).

Fine Adjustment

2. Place an empty large hub reel on the left reel table, and fasten one end of a 30" length of string to the reel anchor.
3. Wind serveral turns of string counter clockwise around the hub and attach a suitable spring scale to the free end of the string.
4. Pull on the spring scale and take a reading only when the reel is in steady motion since the force required to overcome static friction will produce a false, excessively high initial reading.
5. The reading should be 1600 to 2000 g-cm (22.4 to 28.0 oz-inch).
6. If adjustment is required, loosen the 3 screws marked (C) shown and position the brake for optimum pressure.
7. The adjustment of the right brake is the same with the exception that rotations are clockwise. (Wind string Clockwise around reel hub).

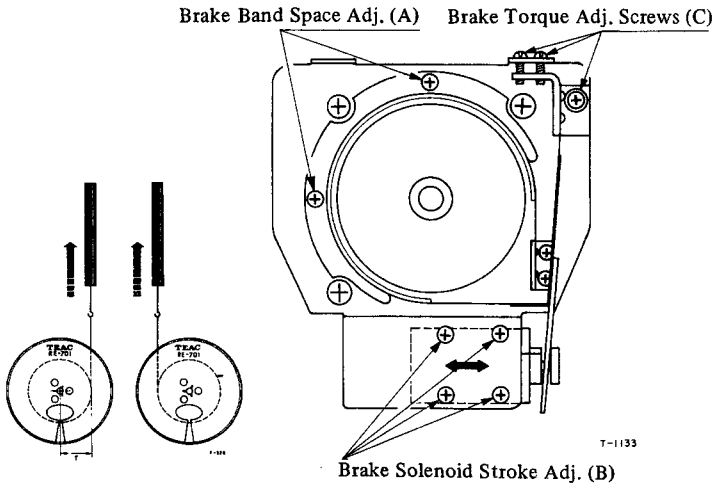


Fig. 7-2 Brake Torque Measurement and Adj. Locations

TORQUE MEASUREMENT PROCEDURE

NOTE: The following torque measurements should be made with a spring scale that is calibrated to read Torque in gram-cm. for a 7" reel with a small reel hub. If the spring scale you are using is calibrated to read Force or Weight in grams the Torque must be calculated using the Formula:

Torque (in gm·cm or oz·in) = Weight or Force (in gr. or oz.) x radius of hub (in cm or inches)

If you are using a reel with other than the standard 2.5" or 6.0 cm (approx.) diameter hub, the Torque must be calculated using the same formula and substituting the actual radius and Weight or Force reading.

All Torque and Tension measurements must be made with the automatic shut-off switch (right tension arm) held in the ON position.

Brake Torque Measurements should be made using large hub reel with a hub diameter of 4 or 10.2 cm.

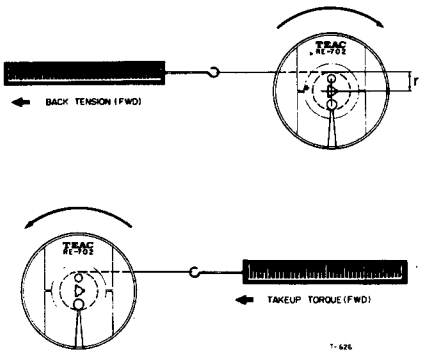


Fig. 7-3 Torque Measurement

7-3 TAKE-UP TORQUE

1. Place an empty reel on the right reel table and attach spring scale.
2. Place the deck in the Play mode.
3. Allow the rotation of the reel to draw the scale slowly towards the hub.
4. Hold the spring scale with enough force to allow a steady reading.
5. **The reading or calculated value should be approx.:**

REEL SW	TAKE-UP TORQUE
LARGE	770 to 830 g-cm (11 to 12 oz-inch)
SMALL	370 to 410 g-cm (5.2 to 5.7 oz-inch)

NOTE: LARGE size value is for reference only.

7-4 BACK TENSION

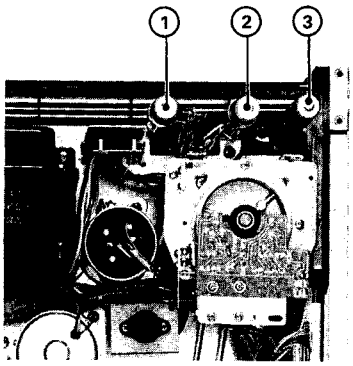
1. Place an empty 7" reel with small hub on the left reel table and fasten one end of a 30" length of string to the reel anchor.
2. Wind several turns of string counter-clockwise around the hub. Attach spring scale to string.
3. Place the deck in the Play mode.
4. Pull the scale away from the reel against the motor torque with a steady, smooth motion.
5. Note the scale reading while it is in steady motion. (The string must not rub the reel flanges)
6. **The reading or calculated value should be approx.:**

REEL SW	BACK TENSION
LARGE	330 to 390 g-cm (4.6 to 5.5 oz-inch)
SMALL	180 to 220 g-cm (2.5 to 3.1 oz-inch)

NOTE: LARGE size value is for reference only.

Adjustment Location

If necessary, adjust slider of the resistors until you have the correct scale reading for optimum torque. Refer to adj. location below.



1	for TAKE-UP TORQUE
2	for BACK TENSION
3	for F.F (or REW) BACK TENSION

NOTE: No. 3 for no adjustment provided (FIXED).

Fig. 7-4 Resistors Adj. Location

7-5 FAST FORWARD AND REWIND TORQUE SPECIFICATION

2000 g-cm (28 oz-inch), or more at F.F.
2000 g-cm (28 oz-inch), or more at REW

7-6 MAGNETIC RESISTANCE ELEMENT (STOP SENSER ASS'Y) POSITION ADJ.

1. Adjust Screws for a gap between Magnet and Magnetic Resistance Element of approx. 1 mm.
2. Check that there is no delay when changing from F.F. (or REW) mode to Play mode.
   Location; on right side when viewed from the rear.

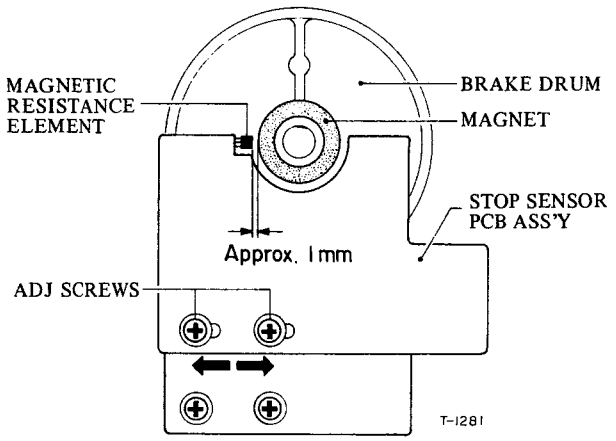


Fig. 7-5 Magnetic Resistance Element Position Adj. Locations

7-8 TAPE SPEED MEASUREMENT

The tape speed should be measured using TEAC flutter free tape, Type YTT-2003 (7½ ips) and YTT-2004 (15 ips). These contain a highly accurate 3000 Hz tone.
Connect a digital frequency counter to either line OUTPUT jack. The indicated frequency should be as follow.

Tape Speed Deviation	3000 Hz ±30 Hz	
Drift	Within 15 Hz, or less	
Using PITCH CONT	Max. (+)	3180 Hz to 3450 Hz
	Min. (–)	2820 Hz to 2550 Hz

NOTE: Tape Speed Measurement: PITCH CONT should be in OFF position. If necessary, adjust tape speed on the Capstan Servo P.C.B.
See Fig. 7-7 below.

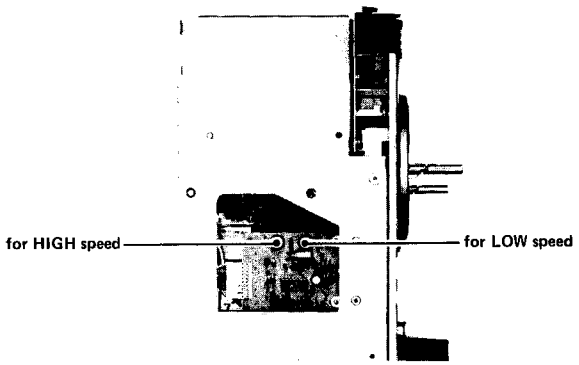


Fig. 7-7 Tape Speeds Adj. Location

7-7 LEFT TENSION ARM ADJ.

1. Place the deck in the Play mode.
2. Adjust the "ground terminal" (B) screw for uniform movement of the Tension Arm.
3. Adjust the "ground terminal" (A) so that when the tension arm is in the rest position, there is no gap between the "stopper" the side of the circular cut-out in which it sits. In other words, the lug should be adjusted so that the spring supplies just sufficient tension to hold the "stopper" against the side of the hole in the top panel. The "stopper" is the right-angled flange with a rubber sleeve labeled I in the illustration for section 4-3 (page 7).

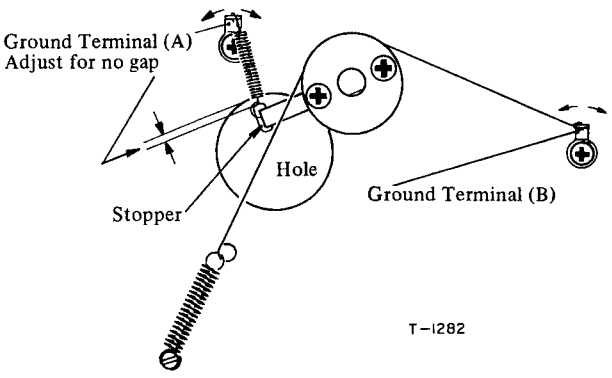


Fig. 7-6 Left Tension Arm Adj.

7-9 WOW AND FLUTTER CHECK

NOTE: Before performing this measurement, clean the head and tape run guides. Also check pinch roller pressure, etc. Use new test tape if possible for the following adjustments.
Values obtained with different standards or equipment cannot be compared.

PLAYBACK PERFORMANCE

1. Connect Test equipment to the deck as shown in Fig. 7-8. (Except Oscillator).
2. Load TEAC YTT-2003 (for LOW, 7½ ips) or YTT-2004 (for HIGH, 15 ips) tape, and playback.
3. Read the indication on the Wow and Flutter meter.
4. The Wow and Flutter should be:
   0.10% or less (WRMS) for 15 ips
   0.12% or lesss (WRMS) for 7½ ips

OVERALL PERFORMANCE

1. Connect test equipment to the deck as shown in Fig. 7-8.
2. Load TEAC YTT-8013 blank tape on the deck and Record a 3000 Hz input signal.
3. Rewind and playback the recorded signal.
4. The reading on the Meter should be:
   0.15% (RMS) for 15 ips
   0.18% (RMS) for 7½ ips

NOTE: These figures apply to any tape position (such as full take-up, full supply reel or about midpoint).

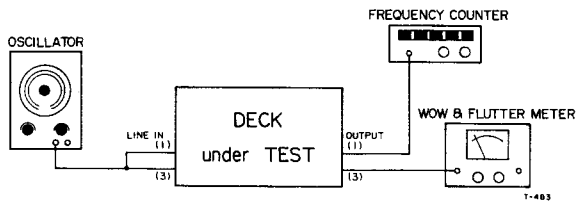


Fig 7-8 Test Connections for Wow/Flutter and Tape Speed Test

7-10 VOLTAGE AND FREQUENCY CONVERSION (GENERAL EXPORT MODEL ONLY)

This deck is adjusted to operate on an electric power source of the voltage and frequency specified on the reel tag and packing carton. If it is necessary to change the frequency or voltage requirements of this deck to match your area, use the following procedures.
ALWAYS DISCONNECT POWER LINE CORD BEFORE MAKING THESE CHANGES.

Frequency Conversion:

1. Remove the rear panel of the deck by removing 5 screws and 2 feet on the top.
2. Set the power frequency selector slide switch to the 50 or 60 position to match the power line frequency in your area. (See Location below.)

NOTE: This deck uses a DC Servo controlled capstan motor so it is not necessary to change the capstan drive belt.

Voltage Conversion:

The deck may be set for 100, 117, 220 or 240 volts. To alter the setting, pull out the voltage selector plug and reinsert it so that the desired voltage shows in the cutout. (See location below.)

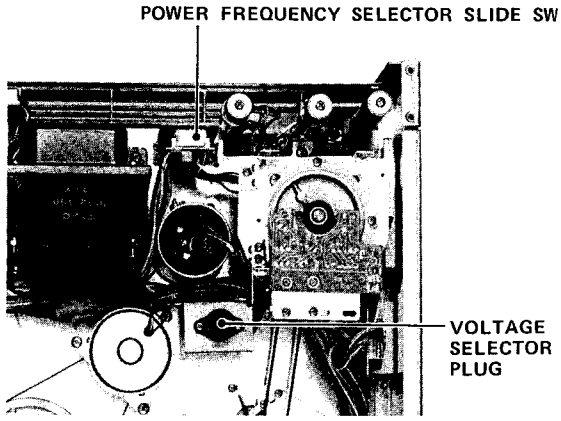


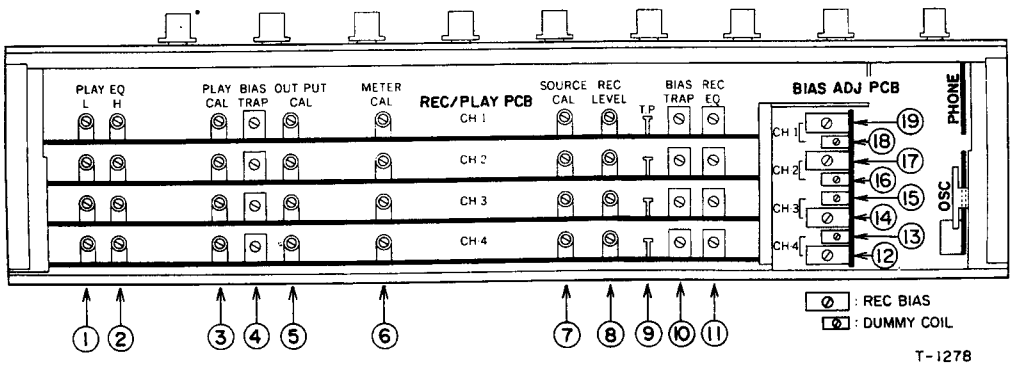
Fig. 7-9 Voltage and Frequency Conversion Locations

8. MEASUREMENT AND ADJUSTMENT

– ELECTRICAL –

- Before performing maintenance on this deck, thoroughly clean and demagnetize the entire tape path. TEAC maintenance equipment to be used:
  TEAC TZ-261 A/B for cleaning
  TEAC E-3 or equivalent for demagnetizing
- Service Data were determined using TEAC YTT-Series Test Tape.
- The deck must be matched to the voltage and frequency of your locality.
  Refer to Power Requirement and Consumption chart (Item 2-1, Specifications Section).
- Most amplifier checks and adjustments can be made from the bottom with the (bottom) metal panel removed.
- Outlined procedures refer only to channel 1, the same procedures also apply to channel 2, 3 and 4.

ADJUSTMENT LOCATIONS AND ADJUSTMENT POINTS



①	R122	⑥	R159	⑪	L102	⑯	L382
②	R117	⑦	R194	⑫	C384	⑰	C382
③	R143	⑧	R206	⑬	L384	⑱	L381
④	L101	⑨	BIAS TRAP T.P.	⑭	C383	⑲	C381
⑤	R149	⑩	L103	⑮	L383		

Fig. 8-1 Adjustment Locations and Adjustment Points

8-MONITOR PERFORMANCE ADJ.-1

8-1 LINE INPUT LEVEL ADJUST

OUTPUT SELECT SW . . . . . SOURCE
INPUT SW . . . . . LINE
INPUT VR . . . . . Maximum

1. Remove the special shorting connector joining ENCODER SEND and ENCODER RCV jack 1 (Channel 1). Connect a VTVM to the ENCODER SEND jack 1.

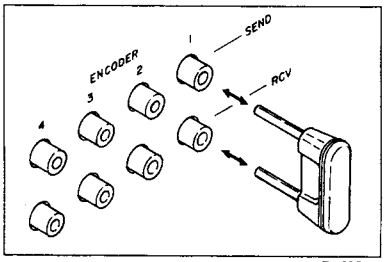


Fig. 8-2 Shorting Connector

2. Apply a 400 Hz −22 dB (61.5 mV) signal from an AF oscillator to LINE IN jack 1.
3. Adjust the SOURCE CAL. VR194 for −8 dB (308 mV) at ENCODER SEND jack 1.

NOTE: This is the Minimum Input Level

4. Change the input signal to −12 dB (195 mV).
5. Adjust INPUT level control for −8 dB (308 mV) at the ENCODER SEND jack 1.

NOTE: This setting represents the Specified Input Level

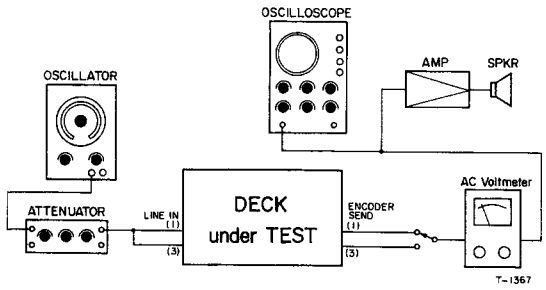


Fig. 8-3 Test Connections for Monitor Check

8-2 MIC CIRCUIT FUNCTION CHECK

INPUT SW . . . . MIC (ATT = 0 dB)

6. Apply a 400 Hz signal at −60 dB ±2 dB (975 μV 615 μV) to the MIC input jack (on front panel).
7. Check for −8 dB (308 mV) at ENCODER SEND jack 1.
   INPUT SW . . . . MIC (ATT = 20 dB)
8. Check for an output 20 dB ±1 dB below the 308 mV output obtained in steps 6 and 7 above. (ie. Output should now be − 28 dB or 30.8 mV)

8-3 OUTPUT AMP. GAIN ADJ.

9. Be sure the control are set as in 8-1 (Specified Input Level Setting).
10. Insert shorting connector between ENCODER SEND and RCV jacks.
11. Connect a VTVM to the OUTPUT jack 1.
12. Set the OUTPUT Level Control to position "8". This is the Specified Output Setting.
13. Apply a 400 Hz −12 dB (195 mV) signal from the oscillator to LINE IN jack 1.
14. Adjust OUTPUT CAL R149 for −8 dB (308 mV) at OUTPUT jack 1.

8-4 VU METER CALIBRATION

15. Adjust METER CAL R159 for 0 VU reading on the VU METER.

NOTE: Repeat the above procedures for channels 2, 3 and 4.

9-PLAYBACK PERFORMANCE ADJ.

9-1 PLAYBACK HEAD AZIMUTH ADJ.

NOTE: Before proceeding with the following head adjustments be sure that the heads have been properly mounted for HEIGHT, TILT and TANGENCY. See page 10.

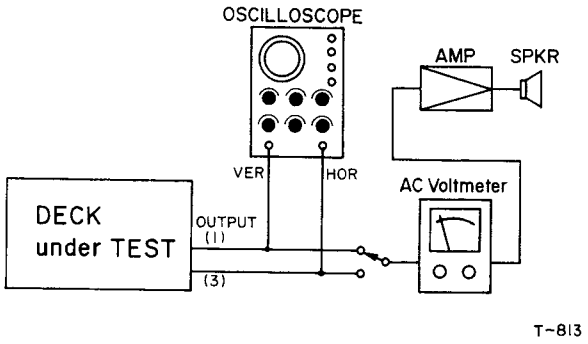


Fig. 8-4 Head Alignment Fine Adjustment Set-up and Test Connections (PLAYBACK)

OUTPUT SELECT SW . . . . . PLAY

1. Connect a VTVM to the OUTPUT jack 1.
2. Remove the head housing by removing the 2 retaining screws.
3. Thread a TEAC YTT-1003 Test Tape on the deck.
4. Play (▶) the 16 kHz −10 dB test tone from section 2 of the test tape.
5. Slowly rotate the Azimuth screw until the maximum signal is read on the VTVM.
6. Connect an oscilloscope to the OUTPUT jack 1 and 3.
7. Adjust the Azimuth screw if necessary until the following phase difference figures are obtained.

See next page.

Tape Speed	Frequency Limits	Phase Difference
7-1/2 ips.	400 Hz – 6 kHz	45° or less
15 ips.	400 Hz – 8 kHz	45° or less

NOTE: Phase difference readings are made between ch 1 and ch 3 and between ch 2 and ch 4.

8. After adjustment, secure the screw with a drop of locking paint.

9-2 OUTPUT LEVEL SETTING

9. The Specified Output Level Setting must be used. See Item 8-3 step 12 above.
10. Connect a VTVM to the DECODER SEND jack 1.
11. Play the 400 Hz 0 dB tone in section 1 of the YTT-1003 Test Tape.
12. Adjust PLAY CAL R143 for –8 dB (308 mV) at DECODER SEND jack 1.
13. Insert shorting connector between DECODER SEND and RCV jacks.
14. Check for –8 dB (308 mV) at OUTPUT jack. (OUTPUT Level control at position "8").
    MAX. OUTPUT LEVEL
15. Turn the OUTPUT Level control fully clockwise (max.) and check for –2 dB ±2 dB at OUTPUT jack 1.
16. Reduce OUTPUT Level Control until –8 dB (308 mV) is obtained on the VTVM.

NOTE: This is the Specified Output Level Setting. Do not disturb this setting until the remaining adjustments have been completed.

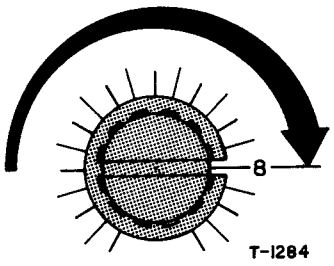


Fig. 8-5 Specified Output Level Setting

9-3 VU METER INDICATION CHECK

17. With the controls set as described above check that the VU METER reads 0 VU ±0.5 VU.

9-4 FREQUENCY RESPONSE – PLAYBACK

18. Play the Test Tape and compare the readings on the VTVM with the response limits given in Fig. 8-6.

Tape Speed	Test Tape	Play EQ Adj.
HIGH	YTT-1004	R117
LOW	YTT-1003	R122

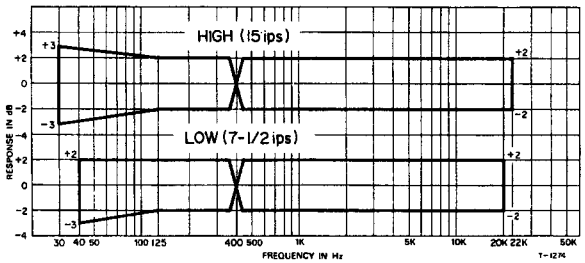


Fig. 8-6 Frequency Response –Playback–

NOTE: If the measured frequency response does not meet the specified response limits, especially at the high end of the spectrum, check that the heads are free of accumulated dirt or oxide. If they are completely clean the head azimuth must be readjusted.

9-5 SIGNAL-TO-NOISE RATIO – PLAYBACK –

19. OUTPUT Level Control should be at the Specified Output Level Setting.
20. Remove the Test Tape from the deck. Hold the shut-off arm (right) in the ON position.
21. Press the PLAY (▶) button.
22. The VTVM connected to the OUTPUT jack should indicate the values below.

OUTPUT SELECT SW	Tape Speed	S/N
PLAY	7-1/2 ips	–58 dB
	15 ips	–58 dB

NOTE: This corresponds to a signal-to-noise ratio of 50 dB (for PLAY 7½ ips). It is the difference between the residual noise of –58 dB and the specified output level of –8 dB.

10-MONITOR PERFORMANCE CHECK -2

10-1 MONITOR LEVEL CHECK

OUTPUT SELECT SW . . . . . SOURCE
INPUT SW . . . . . LINE IN

1. Apply a 400 Hz −12 dB (195 mV) signal from the oscillator to the LINE IN jack 1.
2. Check for −8 dB (308 mV) at the OUTPUT jack. Also check for 0 VU on the VU METER.

10-2 HEADPHONE OUTPUT LEVEL CHECK

MONITOR CONTROL VOLUME . . . Maximum

NOTE: At this point both the INPUT control and the OUTPUT control are at their Specified Settings.

3. Connect a 4 ohm non-inductive resistor across the headphone (PHONES) jack and connect the VTVM across the resistor.
4. Depress the Headphone Selector Button for channel 1.
5. The VTVM should indicate −19 dB ±1 dB (77.5 mV − 97.5 mV).
6. Depress the buttons for channels 2, 3 and 4 so that all 4 are depressed.
7. The VTVM reading should increase to −6 dB ±2 dB (308 mV − 489 mV).

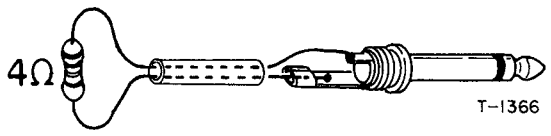


Fig. 8-7 Test Connections for Headphone Output Check

11-RECORD PERFORMANCE ADJ.

NOTE: For all record performance measurements and adjustments the FUNCTION SELECT SW should be ON for all channels.

11-1 BIAS TRAP ADJUSTMENT

1. Remove all Input Signals.
2. Thread a blank tape on the deck and depress RECORD and PAUSE buttons.
3. Connect a VTVM or oscilloscope to Test Point (T.P.) and ground. See Fig. 8-8.
4. Using a plastic trimmer tool, adjust the BIAS TRAP L103 for minimum reading on the scope or meter.

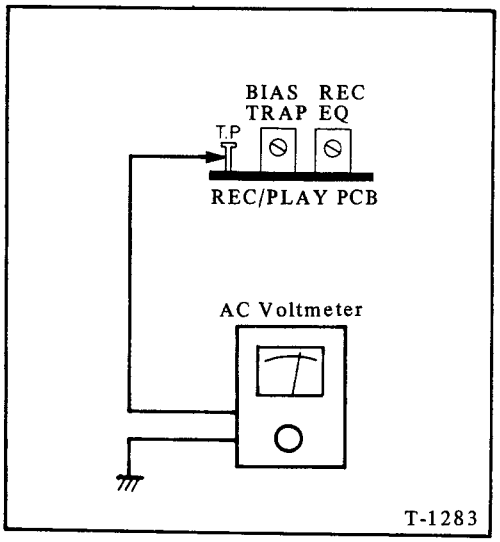


Fig. 8-8 Bias Limits Chart

11-2 RECORD BIAS ADJ.

Tape SPEED Selector SW. . . LOW (7-1/2 ips)
OUTPUT SELECT SW . . . . . : PLAY

NOTE: Be sure the Bias Trap has been adjusted as per section 11-1.

5. Apply a 7 kHz signal at −22 dB (61.5 mV) to the LINE IN jack.
6. Turn the trimmer capacitor C381 fully counter-clockwise.
7. While recording on the YTT-8013 blank tape, slowly turn the Trimmer Capacitor clockwise until the reading peaks and continue turning clockwise until the reading backs off 2 dB.
8. These procedures are repeated for channels 2, 3 and 4.

NOTE: The Trimmer Capacitors are located on the BIAS P.C.B. Refer to page 16 Adj. Location and Adj. points.

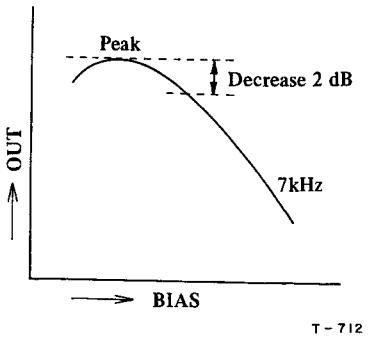


Fig. 8-9 Bias Limits Chart

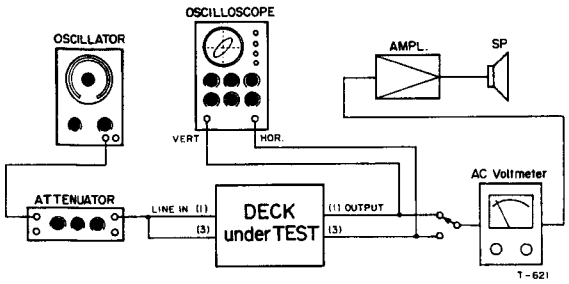


Fig. 8-10 Test Connection for Recording Check

11-3 RECORD LEVEL SET

9. Apply a 400 Hz signal at −12 dB (195 mV) to the LINE IN jack.
10. Check that the LINE and OUTPUT Controls are still at their specified positions.
11. Begin recording.
12. Adjust REC LEVEL R206 for −8 dB (308 mV) at the OUTPUT jack.

11-4 FREQUENCY RESPONSE – OVERALL

NOTE: To avoid saturation of the tape these checks should be made at least 10 dB (−10 VU) below the specified input level (ie. −22 dB/61.5 mV) for LOW Speed and at 0 VU for HIGH Speed.
Any bias signal feeding into the test equipment should be filtered out by adjusting the external bias trap.

Tape SPEED Selector SW . . . . . LOW

1. Apply a signal swept from 40 Hz to 20 kHz at −22 dB (61.5 mV) to the LINE IN jack and record on a blank TEAC YTT-8013 tape.
2. During recording monitor the off-tape signal and adjust Equalization REC EQ L102 for readings within the response limits.

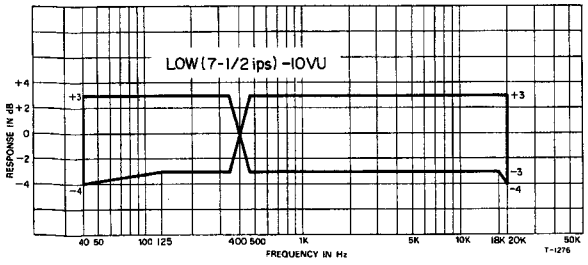


Fig. 8-11 Frequency Response –Overall– 1

Tape SPEED Selector SW . . . . . HIGH

3. Apply a signal swept from 40 Hz to 22 kHz, this time at a level of −12 dB (195 mV) and check that the response is within the limits indicated.
4. If REC EQ L102 are adjusted check LOW section again.

NOTE: If the response is not uniform, the heads should be checked for accumulated dirt and oxide and the bias adjustment should be repeated.

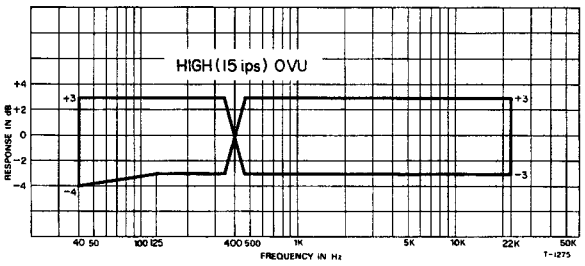


Fig. 8-12 Frequency Response –Overall– 2

11-5 SIGNAL-TO-NOISE RATIO – OVERALL

5. OUTPUT and LINE Controls should be at the specified positions.
6. Remove the AF oscillator from the LINE IN jack.
7. Place the deck in the Record mode with no signal applied.
8. Note the point on the Index Counter where the recording begins.
9. Rewind the recorded tape to the beginning and play it back.
10. The noise levels read on the VTVM should be as follows:

Tape Speed	Noise Level
LOW (7-1/2 ips)	−54 dB (1.55 mV) or better
HIGH (15 ips)	−53 dB (1.73 mV) or better

NOTE: This −53 dB/54 dB corresponds to a S/N ratio of 45 dB/46 dB (minimum), being the difference between the residual noise and the specified output level of −8 dB.

The measuring method used to establish the S/N spec. in the catalogue and the owner's manual is different and these figures will not be the same.

11-6 OPTIMUM ERASURE MEASUREMENT

Tape SPEED SELECTOR SW . HIGH (15 ips)

1. Thread the YTT-8013 test tape on the deck.
2. Apply a 1 kHz signal at 10 dB above the specified level of −12 dB (195 mV) to LINE IN jack 1.
3. Make a 30 second recording of the above signal and rewind to the beginning of the recording.
4. Disconnect the 1 kHz signal source from the LINE IN jack.
5. Connect a VTVM to the OUTPUT jack 1 through a 1 kHz Narrow Band Pass Filter.
6. Set the OUTPUT SELECT SW to PLAY position.
7. Put deck in the RECORD mode and "record" (erase) over this previous recording, then rewind to beginning again.
8. Put deck in PLAY mode and monitor the Channel 1 output on the VTVM.
9. The difference in output level compared with the above recording level should be more than 65 dB.
10. Repeat this procedure for the other channels.

NOTE: Do not overlook filter loss when making this measurement.

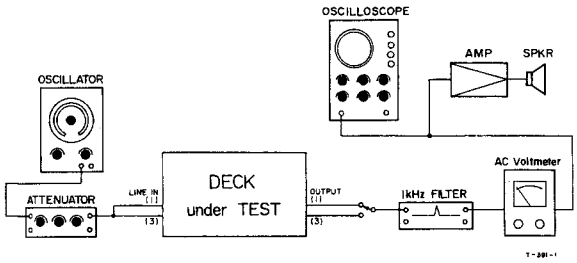


Fig. 8-13 Test Connections for Erase Measurement

11-7 CHANNEL SEPARATION

OUTPUT SELECT SW . . . . . PLAY
TAPE SPEED SELECTOR SW HIGH (15 ips)
FUNCTION SELECT SW . . . . . all ON

NOTE: Be sure that the Line and Level controls are still at their specified positions.

1. Apply a 1 kHz signal at −8 dB (308 mV) to channels 2, 3 and 4.
2. Place deck in the Record mode.
3. While recording measure the output from channel 1 with a VTVM connected through a 1 kHz bandpass filter. The level should be −48 dB or better. (Spec. 40 dB)
4. Depress the STOP button.

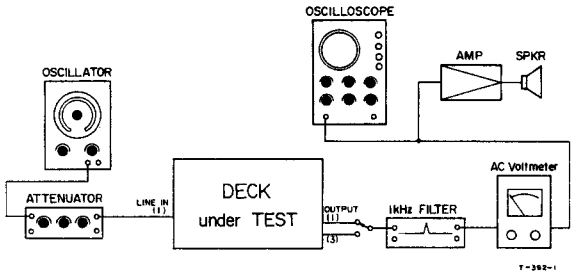


Fig. 8-14 Test Connections for Channel Separation Check

11-8 BIAS LEAKAGE CHECK

OUTPUT Level Control . . . . . Maximum

6. Remove the Head Housing. Connect a VTVM to the OUTPUT jack.
7. Place the OUTPUT SELECT SW to PLAY position.
8. Put the deck in the Record mode.
9. Adjust TRAP L101 for minimum bias leakage reading at the OUTPUT jack. Reading should be −48 dB or less with the OUTPUT SELECT SW in any position.

11-9 DISTORTION CHECK

1. Thread the YTT-8013 test tape on the deck.
2. Apply a 1 kHz signal to the LINE IN jack at 0 VU.
3. With the Line and Output Level Controls set to the specified position, place the deck in the record mode for approx. 30 seconds.
4. Rewind and play this recorded section of the tape.
5. The distortion read on the distortion analyzer should be 1.0%, or less.

12-SIMUL-SYNC PERFORMANCE

12-1 SYNC PLAYBACK LEVEL

OUTPUT SELECT SW . . . . . SYNC

1. Connect a VTVM to the OUTPUT jack.
2. Play the 400 Hz 0 dB tone in section 1 of the YTT-1003 Test Tape.
3. Check for −8 dB ±1 dB (356 mV − 275 mV) at the OUTPUT jack.

12-2 SYNC FREQUENCY RESPONSE
− PLAYBACK −

4. Apply a signal swept from 50 Hz to 6.3 kHz at −12 dB (195 mV) and while monitoring the off-tape signal check for readings within the Response Limits.

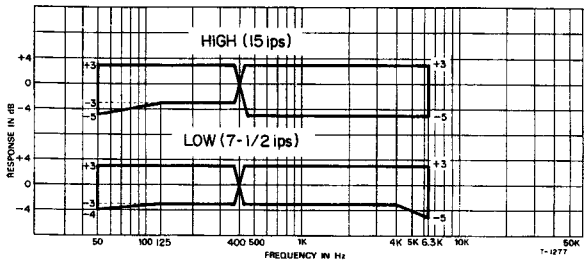


Fig. 8-15 SYNC Freq. Response

12-3 SYNC S/N RATIO CHECK

1. OUTPUT Level Control should be at the Specified Output Level Setting.
2. Remove the Test Tape from the deck. Hold the shut-off arm (right) in the ON position.
3. Press the PLAY (▶) button.
4. The VTVM connected to the OUTPUT jack should indicate the values below.

OUTPUT SELECT SW	Tape Speed	S/N
SYNC	7-1/2 ips	−48 dB
	15 ips	−48 dB

NOTE: This corresponds to a signal-to-noise ratio of 40 dB (for SYNC 7-1/2 ips). It is the difference between the residual noise of −48 dB and the specified output level −8 dB.

12-4 SYNC CHANNEL SEPARATION

TAPE SPEED SELECTOR SW HIGH (15 ips)
FUNCTION SELECT SW . . . . . all ON

1. Repeat the page 21, item 11-7 procedure and check the crosstalk in the SYNC mode. The level should be −53 dB or better (spec. 45 dB).

12-5 SYNC CROSSTALK CHECK

1. Apply a 2 kHz −12 dB (194 mV) signal from the AF oscillator to the LINE IN jacks 1,3 and 4.
2. Place the deck in the REC and PAUSE mode.
3. Ensure that the FUNCTION SELECT SW for channel 2 is OFF.
4. Check the difference in level between the Sync output (1,3 and 4) and (2).
   The difference should be 8 dB or less.
5. Repeat these procedures for channels (1,2 and 4) and between 3.

9. SERVICING AND MAINTENANCE

9-1 CLEANING

TEAC TZ-261A for Head cleaning and TZ-261B for Rubber cleaning should be used. Use as follows:

TZ-216A	TZ-261
Motor pulley	Pinch roller rubber
Heads, Brake drums	Capstan belt
Capstan shaft	Counter belt
Tape run guides	

9-2 LUBRICATION

Under normal operating conditions, lubrication is required only once each year. Before lubricating, clean the drive belt and drive pulley... etc. Operate the deck for 30 minutes to 1 hour immediately prior to oiling. After oiling, keep the deck in the upright position for 3 to 4 hours to allow thorough absorption of the oil.

Approximately once each year or after 2000 hours of use, apply TEAC TZ-255 or equiv. Lubricating Oil to the following places only;

- Pinch roller shaft . . . . . 1 drop
- Capstan shaft . . . . . 2 drops

(Remove the dust cap for access to the oil pit)

NOTE: Excessive oiling will scatter oil inside the deck. This oil will cause drive belt slippage and other difficulties. Check for slippage and clean all parts inside the deck before operating after lubrication. Check for oil emission after operation and before returning deck to the customer.

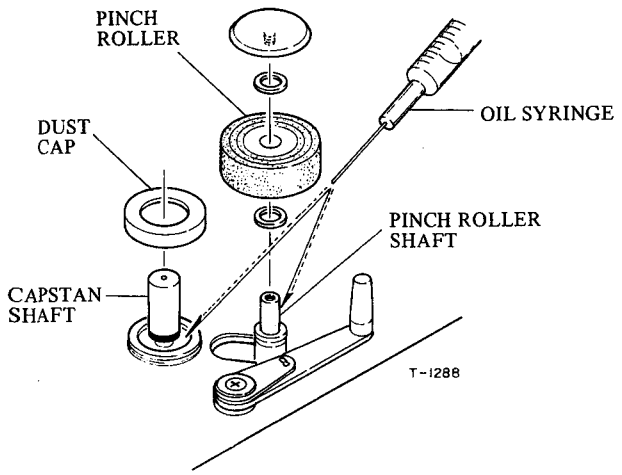


Fig. 9-1 Capstan Shaft and Pinch Roller Shaft Oiling Points

9-3 TEAC MAINTENANCE FLUIDS

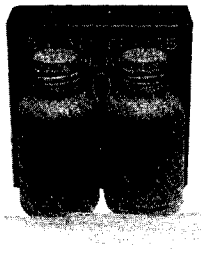


Fig. 9-2 TZ-255 Oil Kit

Fig. 9-3 TZ-261 Tape Recorder Kit

9-4 DEMAGNETIZATION OF HEADS

If the Record or Playback heads become magnetized, noise will increase and tonal fidelity will deteriorate. For this reason it is advisable to use non-magnetic tools when working near the heads. If the heads have had any contact with current or magnetized metal parts, demagnetize them with a TEAC E-3 eraser or equivalent.

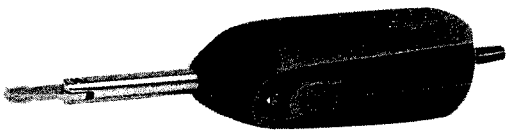


Fig. 9-4 TEAC E-3

10. SIMPLIFIED SCHEMATIC AND LEVEL DIAGRAMS

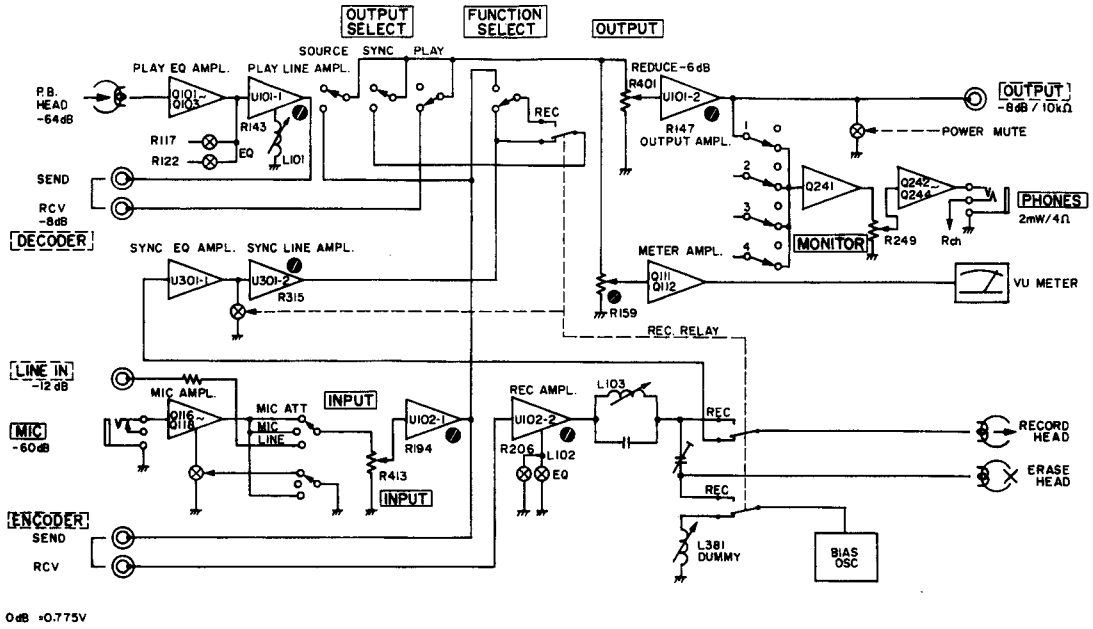
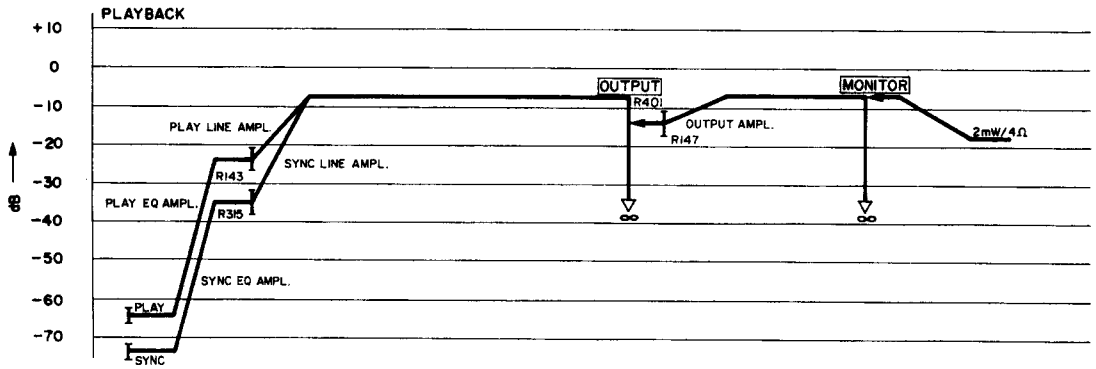
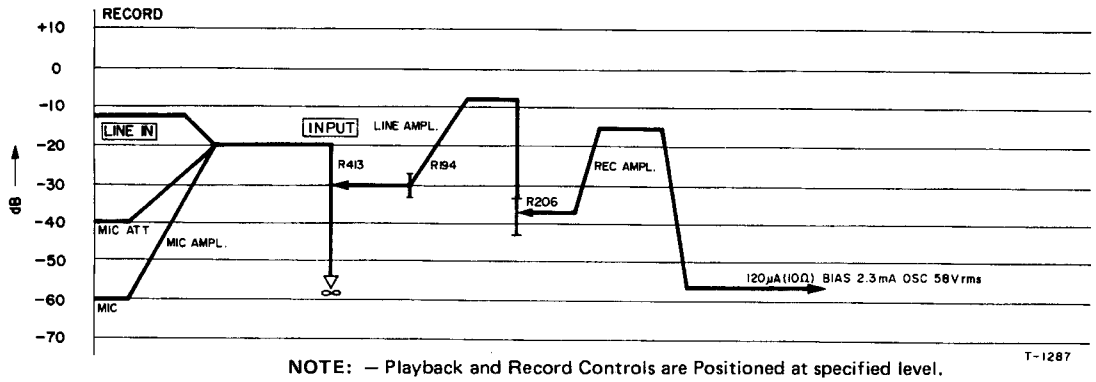


Fig. 10-1 Simplified Schematic Diagram

PLAYBACK



RECORD



NOTE: – Playback and Record Controls are Positioned at specified level.
– Each level given in the diagram shows values when 400 Hz specified level is applied.
– 0 dB = 0.775 V
– Ref. Nos. shown in the diagram relate only to the left channel.

Fig. 10-2 Level Diagrams

11. TEAC DECIBEL TABLES

THE COMPARISON VOLTAGES ON THE TOP LINE ARE FOR A 1mW REFERENCE FOR THE IMPEDANCE SHOWN

1V	.775V	0 db	1V	.775V	0 db	1V	.775V	0 db	1V	.775V	0 db	1V	.775V	0 db	1V	179.	126.	89.4	63.2
													600Ω			32Ω	16Ω	8Ω	4Ω
94.4	73.1	80.5	944	731	60.5	9.44	7.31	40.5	94.4	73.1	20.5	944	731	0.5	.891	169	119	84.4	59.7
89.1	69.0	81	891	690	61	8.91	6.90	41	89.1	69.0	21	891	690	1	.794	159	113	79.7	56.4
84.1	65.2	81.5	841	652	61.5	8.41	6.52	41.5	84.1	65.2	21.5	841	652	1.5	.708	151	106	75.3	53.2
79.4	61.5	82	794	615	62	7.94	6.15	42	79.4	61.5	22	794	615	2	.631	142	100	71.0	50.2
75.0	58.1	82.5	750	581	62.5	7.50	5.81	42.5	75.0	58.1	22.5	750	581	2.5	.562	134	94.9	67.1	47.4
70.8	54.8	83	708	548	63	7.08	5.48	43	70.8	54.8	23	708	548	3	.501	127	89.5	63.3	44.8
66.8	51.8	83.5	668	518	63.5	6.68	5.18	43.5	66.8	51.8	23.5	668	518	3.5	.447	120	84.5	59.8	42.3
63.1	48.9	84	631	489	64	6.31	4.89	44	63.1	48.9	24	631	489	4	.398	113	79.8	56.4	39.9
59.6	46.1	84.5	596	461	64.5	5.96	4.61	44.5	59.6	46.1	24.5	596	461	4.5	.355	107	75.3	53.3	37.7
56.2	43.6	85	562	436	65	5.62	4.36	45	56.2	43.6	25	562	436	5	.316	101	71.1	50.3	35.6
53.1	41.1	85.5	531	411	65.5	5.31	4.11	45.5	53.1	41.1	25.5	531	411	5.5	.282	95.0	67.2	47.5	33.6
50.1	38.8	86	501	388	66	5.01	3.88	46	50.1	38.8	26	501	388	6	.251	89.7	63.4	44.8	31.7
47.3	36.7	86.5	473	367	66.5	4.73	3.67	46.5	47.3	36.7	26.5	473	367	6.5	.224	84.6	59.8	42.3	29.9
44.7	34.6	87	447	346	67	4.47	3.46	47	44.7	34.6	27	447	346	7	.200	79.9	56.5	40.0	28.3
42.2	32.7	87.5	422	327	67.5	4.22	3.27	47.5	42.2	32.7	27.5	422	327	7.5	.178	75.4	53.3	37.7	26.7
39.8	30.8	88	398	308	68	3.98	3.08	48	39.8	30.8	28	398	308	8	.158	71.2	50.4	35.6	25.2
37.6	29.1	88.5	376	291	68.5	3.76	2.91	48.5	37.6	29.1	28.5	376	291	8.5	.141	67.2	47.5	33.6	23.8
35.5	27.5	89	355	275	69	3.55	2.75	49	35.5	27.5	29	355	275	9	.126	63.5	44.9	31.7	22.4
33.5	25.9	89.5	335	259	69.5	3.35	2.59	49.5	33.5	25.9	29.5	335	259	9.5	.112	59.9	42.4	30.0	21.2
31.6	24.5	90	316	245	70	3.16	2.45	50	31.6	24.5	30	316	245	10	.100	56.6	40.0	28.3	20.0
29.9	23.1	90.5	299	231	70.5	2.99	2.31	50.5	29.9	23.1	30.5	299	231	10.5	.0891	53.4	37.8	26.7	18.9
28.2	21.8	91	282	218	71	2.82	2.18	51	28.2	21.8	31	282	218	11	.0794	50.4	35.7	25.2	17.8
26.6	20.6	91.5	266	206	71.5	2.66	2.06	51.5	26.6	20.6	31.5	266	206	11.5	.0708	47.6	33.7	23.8	16.8
25.1	19.5	92	251	195	72	2.51	1.95	52	25.1	19.5	32	251	195	12	.0631	44.9	31.8	22.5	15.9
23.7	18.4	92.5	237	184	72.5	2.37	1.84	52.5	23.7	18.4	32.5	237	184	12.5	.0562	42.4	30.0	21.2	15.0
22.4	17.3	93	224	173	73	2.24	1.73	53	22.4	17.3	33	224	173	13	.0501	40.0	28.3	20.0	14.2
21.1	16.4	93.5	211	164	73.5	2.11	1.64	53.5	21.1	16.4	33.5	211	164	13.5	.0447	37.8	26.7	18.9	13.4
20.0	15.5	94	200	155	74	2.00	1.55	54	20.0	15.5	34	200	155	14	.0398	35.7	25.2	17.8	12.6
18.8	14.6	94.5	188	146	74.5	1.88	1.46	54.5	18.8	14.6	34.5	188	146	14.5	.0355	33.7	23.8	16.8	11.9
17.8	13.8	95	178	138	75	1.78	1.38	55	17.8	13.8	35	178	138	15	.0316	31.8	22.5	15.9	11.2
16.8	13.0	95.5	168	130	75.5	1.68	1.30	55.5	16.8	13.0	35.5	168	130	15.5	.0282	30.0	21.2	15.0	10.6
15.8	12.3	96	158	123	76	1.58	1.23	56	15.8	12.3	36	158	123	16	.0251	28.4	20.0	14.2	10.0
15.0	11.6	96.5	150	116	76.5	1.50	1.16	56.5	15.0	11.6	36.5	150	116	16.5	.0224	26.8	18.9	13.4	9.46
14.1	10.9	97	141	109	77	1.41	1.09	57	14.1	10.9	37	141	109	17	.0200	25.3	17.9	12.6	8.93
13.3	10.3	97.5	133	103	77.5	1.33	1.03	57.5	13.3	10.3	37.5	133	103	17.5	.0178	23.9	16.9	11.9	8.43
12.6	9.75	98	126	97.5	78	1.26	.975	58	12.6	9.75	38	126	97.5	18	.0158	22.5	15.9	11.3	7.96
11.9	9.21	98.5	119	92.1	78.5	1.19	.921	58.5	11.9	9.21	38.5	119	92.1	18.5	.0141	21.3	15.0	10.6	7.52
11.2	8.69	99	112	86.9	79	1.12	.869	59	11.2	8.69	39	112	86.9	19	.0126	20.1	14.2	10.0	7.10
10.6	8.20	99.5	106	82.0	79.5	1.06	.820	59.5	10.6	8.20	39.5	106	82.0	19.5	.0112	18.9	13.4	9.47	6.70
10.0	7.75	100	100	77.5	80	1.00	.775	60	10.0	7.75	40	100	77.5	20	.0100	17.9	12.6	8.94	6.32
μV	μV	−db	μV	μV	−db	mV	mV	−db	mV	mV	−db	mV	mV	−db	POWER RATIO	mV	mV	mV	mV

THE COMPARISON VOLTAGES ON THE BOTTOM LINE ARE FOR A 1mW REFERENCE FOR THE IMPEDANCE SHOWN

TEAC DECIBEL TABLE (II)

mV	mV	mV	mV	V	POWER RATIO (mW)	+db	VOLTAGE RATIO	+db	VOLTAGE RATIO	+db	VOLTAGE RATIO	+db	VOLTAGE RATIO	+db	VOLTAGE RATIO
632	894	1,265	1,789	7.75	100.0	20	10.00	40	100.0	60	1,000	80	10,000	100	100,000
597	844	1,194	1,689	7.31	89.1	19.5	9.44	39.5	94.4	59.5	944	79.5	9,441	99.5	94,406
564	797	1,127	1,594	6.90	79.4	19	8.91	39	89.1	59	891	79	8,913	99	89,125
532	753	1,064	1,505	6.52	70.8	18.5	8.41	38.5	84.1	58.5	841	78.5	8,414	98.5	84,139
502	710	1,005	1,421	6.15	63.1	18	7.94	38	79.4	58	794	78	7,943	98	79,432
474	671	949	1,341	5.81	56.2	17.5	7.50	37.5	75.0	57.5	750	77.5	7,499	97.5	74,989
448	633	895	1,266	5.48	50.1	17	7.08	37	70.8	57	708	77	7,079	97	70,794
423	598	845	1,196	5.18	44.7	16.5	6.68	36.5	66.8	56.5	668	76.5	6,683	96.5	66,834
399	564	798	1,129	4.89	39.8	16	6.31	36	63.1	56	631	76	6,310	96	63,095
377	533	753	1,066	4.61	35.5	15.5	5.96	35.5	59.6	55.5	596	75.5	5,957	95.5	59,566
356	503	711	1,006	4.36	31.6	15	5.62	35	56.2	55	562	75	5,623	95	56,234
336	475	672	950	4.11	28.2	14.5	5.31	34.5	53.1	54.5	531	74.5	5,309	94.5	53,088
317	448	634	897	3.88	25.1	14	5.01	34	50.1	54	501	74	5,012	94	50,118
299	423	598	846	3.67	22.4	13.5	4.73	33.5	47.3	53.5	473	73.5	4,732	93.5	47,315
283	400	565	799	3.46	20.0	13	4.47	33	44.7	53	447	73	4,467	93	44,668
267	377	533	754	3.27	17.8	12.5	4.22	32.5	42.2	52.5	422	72.5	4,217	92.5	42,169
252	356	504	712	3.08	15.8	12	3.98	32	39.8	52	398	72	3,981	92	39,810
238	336	475	672	2.91	14.1	11.5	3.76	31.5	37.6	51.5	376	71.5	3,758	91.5	37,583
224	317	449	635	2.75	12.6	11	3.55	31	35.5	51	355	71	3,548	91	35,481
212	300	424	599	2.59	11.2	10.5	3.35	30.5	33.5	50.5	335	70.5	3,350	90.5	33,496
200	283	400	566	2.45	10.00	10	3.16	30	31.6	50	316	70	3,162	90	31,622
189	267	378	534	2.31	8.91	9.5	2.99	29.5	29.9	49.5	299	69.5	2,985	89.5	29,853
178	252	357	504	2.18	7.94	9	2.82	29	28.2	49	282	69	2,818	89	28,183
168	238	337	476	2.06	7.08	8.5	2.66	28.5	26.6	48.5	266	68.5	2,661	88.5	26,607
159	225	318	449	1.95	6.31	8	2.51	28	25.1	48	251	68	2,512	88	25,118
150	212	300	424	1.84	5.62	7.5	2.37	27.5	23.7	47.5	237	67.5	2,371	87.5	23,713
142	200	283	400	1.73	5.01	7	2.24	27	22.4	47	224	67	2,239	87	22,387
134	189	267	378	1.64	4.47	6.5	2.11	26.5	21.1	46.5	211	66.5	2,113	86.5	21,134
126	178	252	357	1.55	3.98	6	2.00	26	20.0	46	200	66	1,995	86	19,952
119	168	238	337	1.46	3.55	5.5	1.88	25.5	18.8	45.5	188	65.5	1,884	85.5	18,836
112	159	225	318	1.38	3.16	5	1.78	25	17.8	45	178	65	1,778	85	17,782
106	150	212	300	1.30	2.82	4.5	1.68	24.5	16.8	44.5	168	64.5	1,679	84.5	16,788
100	142	200	284	1.23	2.51	4	1.58	24	15.8	44	158	64	1,585	84	15,848
94.6	134	189	268	1.16	2.24	3.5	1.50	23.5	15.0	43.5	150	63.5	1,496	83.5	14,962
89.3	126	179	253	1.09	2.00	3	1.41	23	14.1	43	141	63	1,413	83	14,125
84.3	119	169	239	1.03	1.78	2.5	1.33	22.5	13.3	42.5	133	62.5	1,334	82.5	13,335
79.6	113	159	225	.975	1.58	2	1.26	22	12.6	42	126	62	1,259	82	12,589
75.2	106	150	213	.921	1.41	1.5	1.19	21.5	11.9	41.5	119	61.5	1,189	81.5	11,885
71.0	100	142	201	.869	1.26	1	1.12	21	11.2	41	112	61	1,122	81	11,220
67.0	94.7	134	189	.820	1.12	0.5	1.06	20.5	10.6	40.5	106	60.5	1,059	80.5	10,592
4Ω	8Ω	16Ω	32Ω	600Ω											
63.2	89.4	126	179	.775	1	0 db	1 V	0 db	1 V	0 db	1 V	0 db	1 V	0 db	1 V

TABLE FOR.1 db STEP

+1.0	.869	1.259	1.122
+0.9	.859	1.230	1.109
+0.8	.849	1.202	1.096
+0.7	.840	1.175	1.084
+0.6	.830	1.148	1.072
+0.5	.820	1.122	1.059
+0.4	.811	1.096	1.047
+0.3	.802	1.072	1.035
+0.2	.793	1.047	1.023
+0.1	.784	1.023	1.012
		600Ω	
0 db	.775V	1mW	1 V
		600Ω	
−0.1	.766	.977	.989
−0.2	.757	.955	.977
−0.3	.748	.933	.966
−0.4	.740	.912	.955
−0.5	.731	.891	.944
−0.6	.723	.871	.933
−0.7	.715	.851	.923
−0.8	.706	.832	.912
−0.9	.698	.813	.902
−1.0	.690	.794	.891

COMMON LOG TABLE (III)

RATIO	LOG OF RATIO	db POWER $10\log_{10}$	db VOLTAGE $20\log_{10}$
1	0	0	0
10	1	10	20
100	2	20	40
1,000	3	30	60
10,000	4	40	80
100,000	5	50	100
1,000,000	6	60	120

TEAC

TEAC CORPORATION	3-7-3 NAKA-CHO MUSASHINO TOKYO PHONE (0422) 53-1111
TEAC CORPORATION OF AMERICA	7733 TELEGRAPH ROAD MONTEBELLO CALIFORNIA 90640 PHONE (213) 726-0303
TEAC AUSTRALIA PTY., LTD.	165-167 GLADSTONE STREET SOUTH MELBOURNE VICTORIA 3205 PHONE 699-6000

PRINTED IN JAPAN 1078 SYU 2.0 D-2927A

TEAC®

PARTS LIST

A-3440

4-Channel Multitrack Tape Deck with SIMUL-SYNC

TABLE OF CONTENTS

1. EXPLODED VIEWS AND PARTS LIST . . . . 2~11, 19

2. PC BOARD SECTION

2-1. MOTHER PCB ASSY 12, 20
2-2. REC/PLAY AMP PCB ASSY 13, 20
2-3. PHONE AMP PCB ASSY 14, 21
2-4. OSC PCB ASSY 14, 22
2-5. SINC EQ PCB ASSY 15, 22
2-6. BIAS ADJ PCB ASSY 15, 23
2-7. FUNCTION PCB ASSY 16, 23
2-8. POWER SUPPLY PCB ASSY 17, 24
2-9. CONTROL PCB ASSY 18, 25
2-10. STOP SENSOR PCB ASSY 19, 26

INCLUDED ACCESSORIES 26

ASSEMBLING HARDWARE CODING LIST 27

PARTS ORDERING INFORMATION

Spare parts are available through your nearest TEAC Authorized Service Center or directly from the TEAC office, the address of which is written on the back cover. When ordering parts always include the following information:

1. MODEL
2. REF. NO.
3. PARTS NO.
4. DESCRIPTION
5. UNIT SERIAL NO.
6. MANUAL CODE NO.

NOTICE REGARDING PARTS ORDERS

1. Do not order by REF. NO. only.
2. In some instances, individual minor parts are not available. In such a case, the entire assembly including the part requested will be sent to you.
3. Parts are identical between the different models with the exceptions as coded by the designations in the REMARKS column.
4. PC Boards shown viewed from foil side.
5. Parts marked with * require longer delivery time than regular parts.
6. The 30-4 is JAPAN Domestic model of the A-3440.

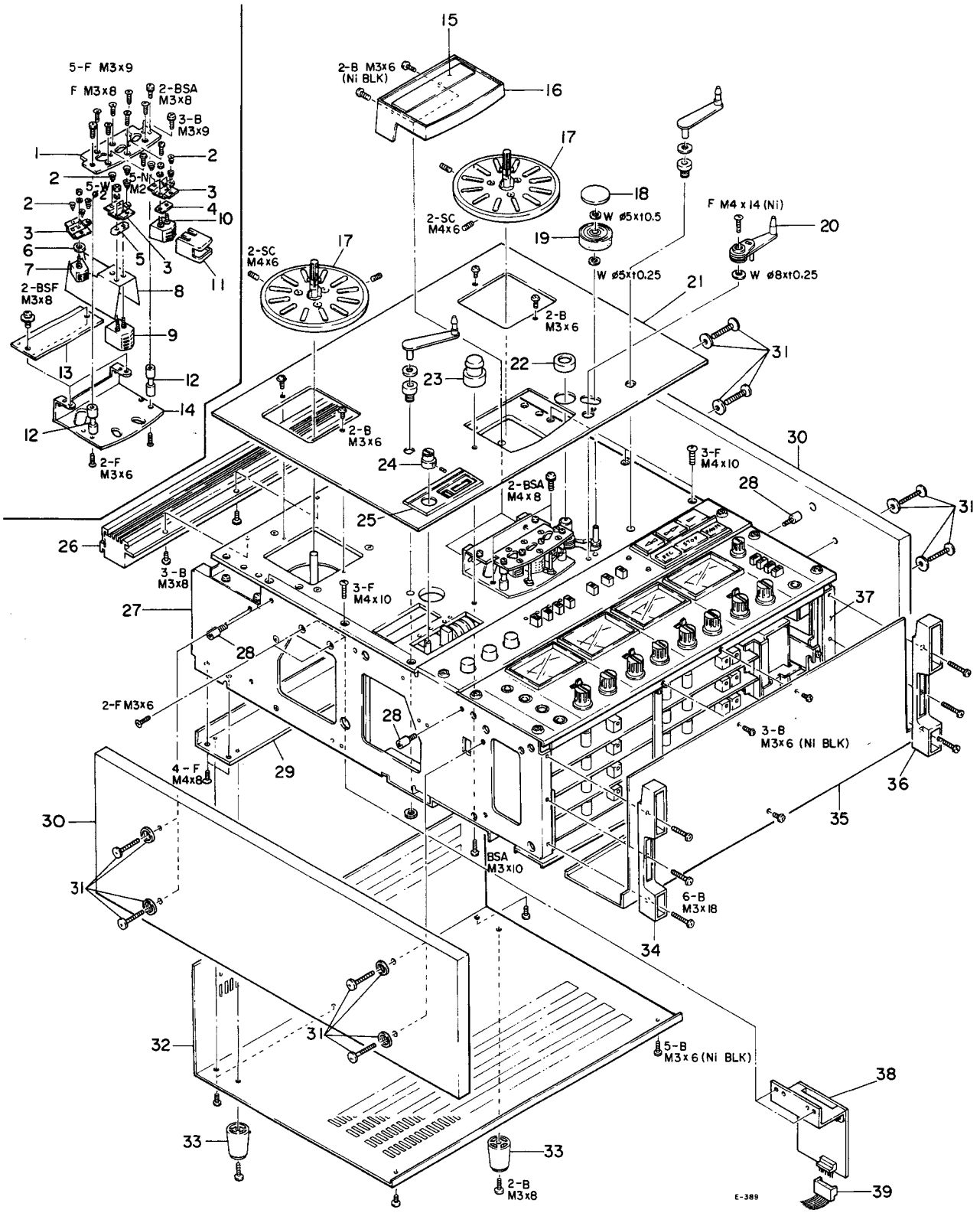
TEAC CORPORATION

Effective: Aug. 1978 EB-024

51032380

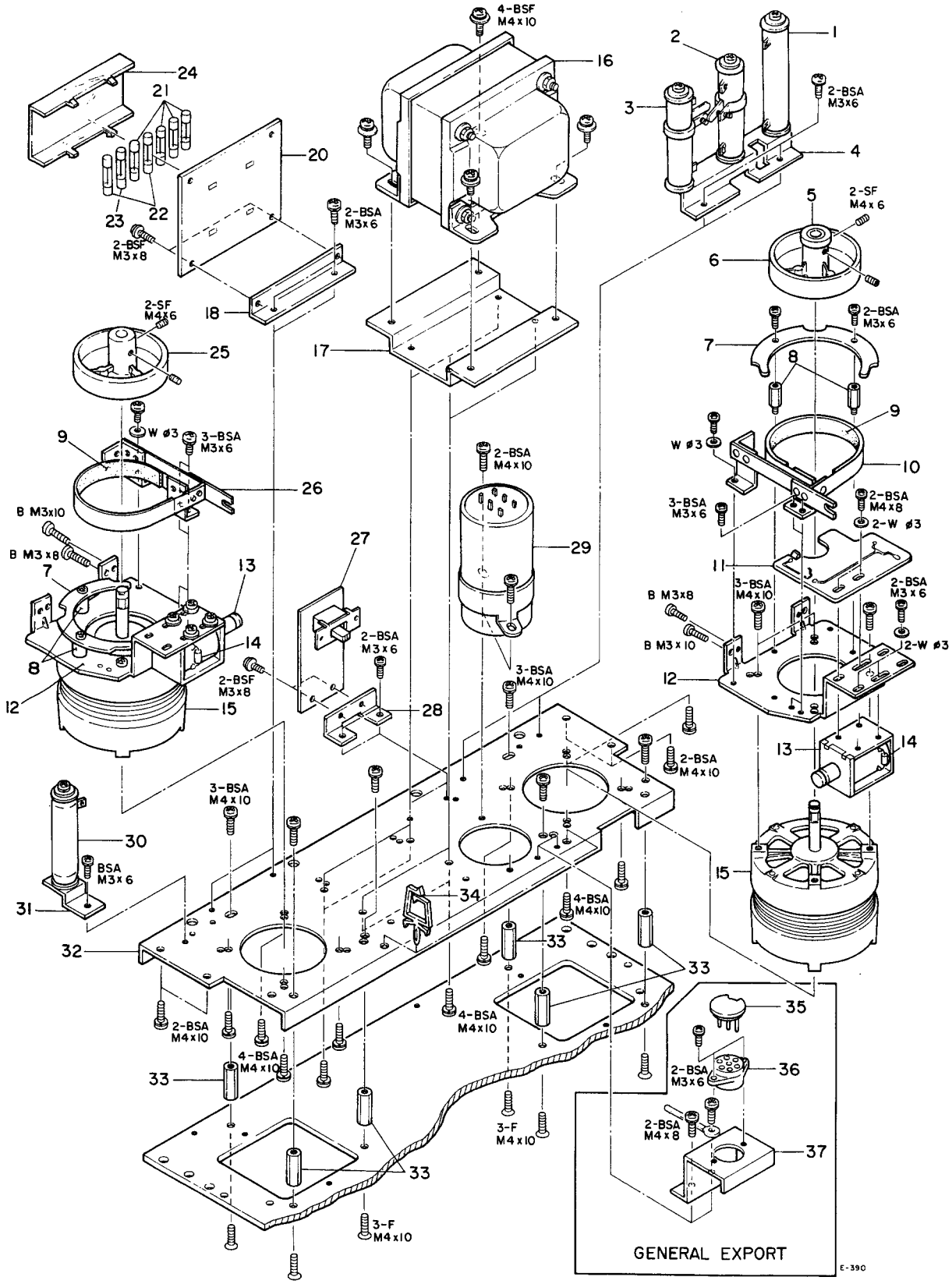
1. EXPLODED VIEWS AND PARTS LIST

EXPLODED VIEW-1



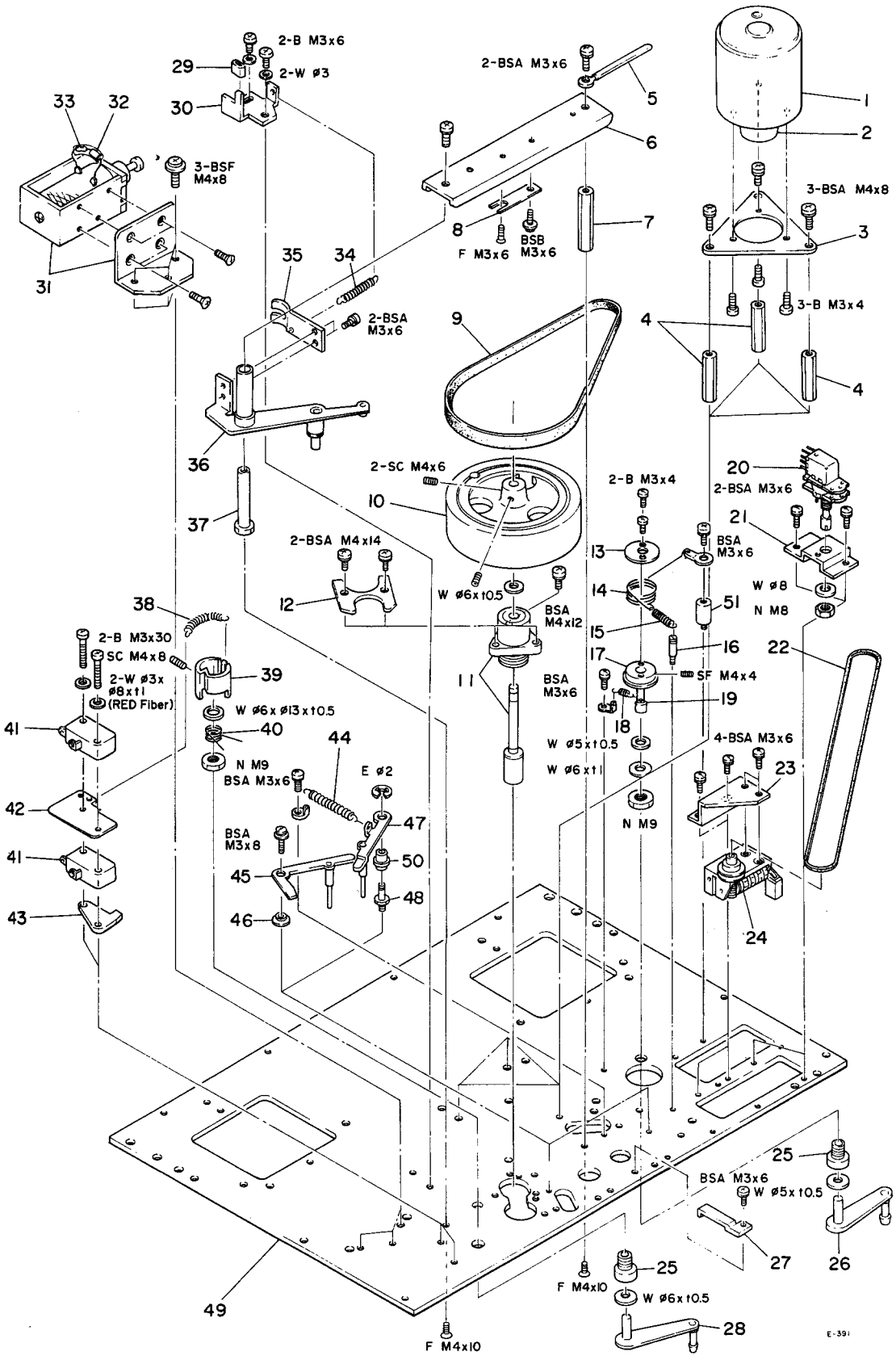
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1 - 1	50134400	Plate, Head Base	
1 - 2	50220500	Spring, B	
1 - 3	50134371	Plate, E.R.P. Head	
1 - 4	55501511	Spacer, Head	
1 - 5	50134390	Spacer, 4ch. Head	
1 - 6	*50136591	Spacer, Erase Head	
1 - 7	50664111	Head, Erase (4T-4CH)	
1 - 8	*55501590	Plate, Shield	
1 - 9	50664251	Head, Record (4T-4CH)	
1 - 10	*50664590	Head, Playback (4T-4CH)	
1 - 11	*50133891	Head Shield, A	
1 - 12	*50182672	Pin, Tape Guide	
1 - 13	*51687380	PCB Assy, HEAD	
1 - 14	*55531001	Plate, Housing Base	
1 - 15	55046510	Plate Assy, Name; A	JAPAN
	55046520	Plate Assy, Name; B	All except JAPAN
1 - 16	55331560	Head Housing	
1 - 17	55040871	Reel Table Assy	
1 - 18	50142180	Cap, Pinch Roller	
1 - 19	50141751	Pinch Roller	
1 - 20	*55030241	Arm Assy, Cue	
1 - 21	*55523070	Panel, Trim	
1 - 22	*50125351	Cap, Dust	
1 - 23	55046441	Roller Assy, Guide	
1 - 24	55449200	Knob, PITCH CONT	
1 - 25	*55345920	Escutcheon	
1 - 26	*50112980	Grille Assy, Top	
1 - 27	*55031640	Panel Assy, Side; L	
1 - 28	*55810370	Screw, Guide	
1 - 29	*50235312	Angle, Rear Cover	
1 - 30	55430280	Sideboard	
1 - 31	55044110	Screw Assy, Sideboard	
1 - 32	*55532580	Cover, Rear	
1 - 33	*55342670	Foot	
1 - 34	*55330190	Leg, Case; L	
1 - 35	*55046390	Cover Assy, Bottom	
1 - 36	*55330180	Leg, Case; R	
1 - 37	*55031650	Panel Assy, Side; R	

EXPLODED VIEW-2



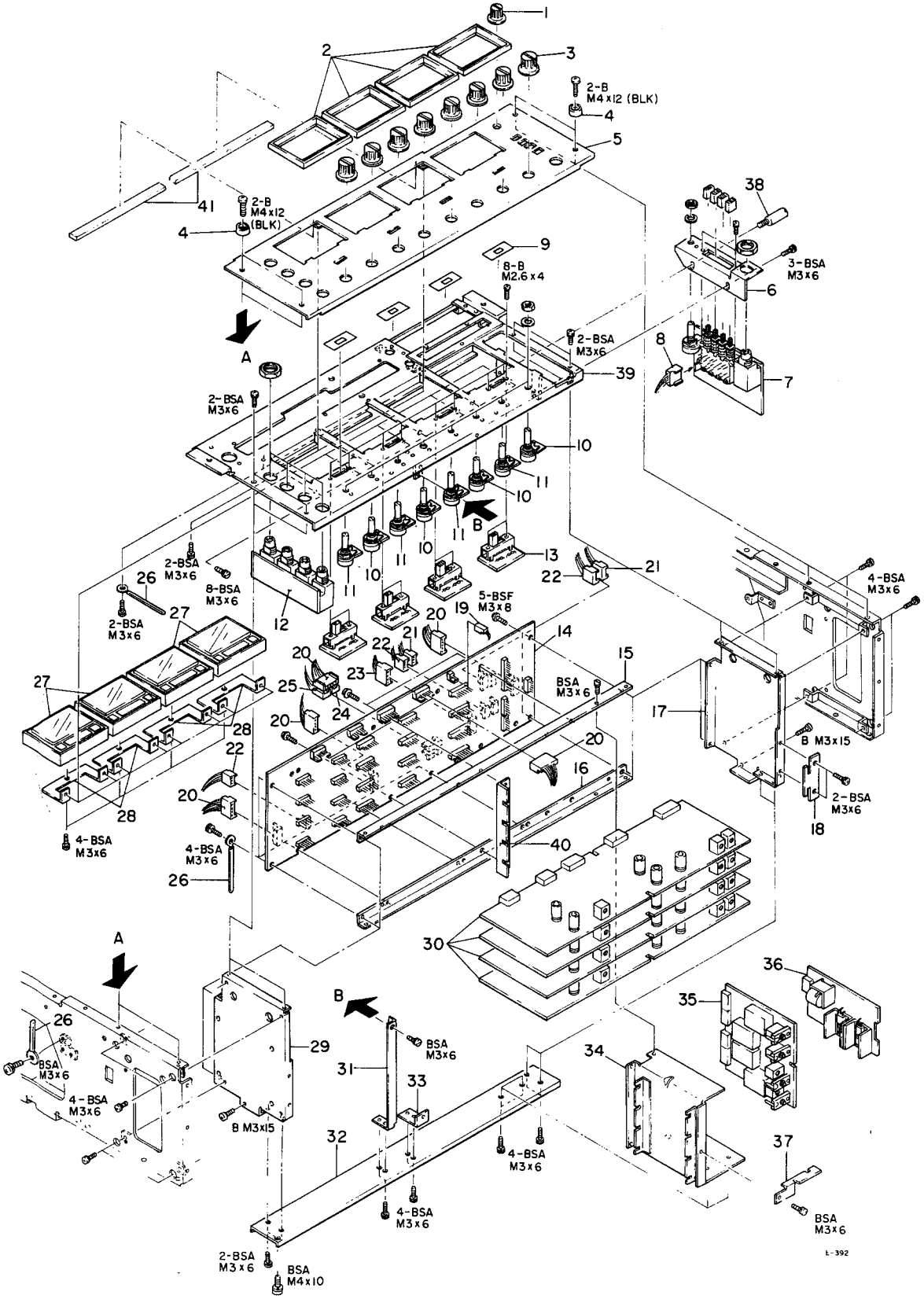
REF. NO.	PARTS NO.	DESCRIPTION		REMARKS
2 - 1	*51815900	Resistor, Wire Wound; 600 ohm 40A		Non Flammable
2 - 2	*51815930	Resistor, Wire Wound; 30 ohm 30A 1G		Non Flammable
2 - 3	*51815960	Resistor, Wire Wound; 150 ohm 30A 1G		Non Flammable
2 - 4	*55555860	Bracket, Resistor		
2 - 5	*55341930	Magnet		
2 - 6	55400650	Drum, Brake; MS		
2 - 7	*55552720	Retainer, Brake		
2 - 8	*55449290	Spacer, Brake Retainer		
2 - 9	55552740	Brake Felt		
2 - 10	50173333	Band Assy, Brake; L		
2 - 11	*51687370	PCB Assy, STOP SENSOR		
2 - 12	55532590	Plate, Brake Band Assy; L		
2 - 13	50616770	Solenoid, Brake		
2 - 14	50422570	Diode, SIB01-06		
2 - 15	71041120	Motor, Reel		
2 - 16	51521192	Transformer, Power		JAPAN
	51521670	Transformer, Power		EUROPE, AUSTRALIA, U.K.
	51521540	Transformer, Power		U.S.A., CANADA
	51521550	Transformer, Power		GENERAL EXPORT
2 - 17	*55554860	Bracket, Transformer		All except EUROPE, AUSTRALIA, U.K.
	*55555080	Bracket, Transformer		EUROPE, AUSTRALIA, U.K.
2 - 18	*55501620	Bracket, Fuse PCB		
2 - 19		(Not used)		
2 - 20	*51687340	PCB Assy, FUSE		JAPAN, GENERAL EXPORT
	*51687400	PCB Assy, FUSE		U.S.A., CANADA
	*51687780	PCB Assy, FUSE		EUROPE, AUSTRALIA, U.K.
	*51677340	PCB, FUSE	(Part of 2 - 20)	All except EUROPE, AUSTRALIA, U.K.
	*51677780	PCB, FUSE	(Part of 2 - 20)	EUROPE, AUSTRALIA, U.K.
	*50412730	Holder, Fuse	(14 used)	Part of 2 - 20
2 - 21	*50411010	Fuse, 1A 250V	(F903, F905~F907)	JAPAN, GENERAL EXPORT
	*50411450	Fuse, 1A 250V	(F903, F905~F907)	U.S.A., CANADA
	*50411400	Fuse, 1AT 250V	(F903, F905~F907)	EUROPE, AUSTRALIA, U.K.
2 - 22	*51422110	Fuse, 3A 250V	(F901, F904)	JAPAN, GENERAL EXPORT
	*51420910	Fuse, 3A 250V	(F901, F904)	U.S.A., CANADA
	*51421900	Fuse, 2.5AT 250V	(F901, F904)	EUROPE, AUSTRALIA, U.K.
2 - 23	*50411140	Fuse, 2A 250V	(F902)	JAPAN, GENERAL EXPORT
	*50411440	Fuse, 2A 250V	(F902)	U.S.A., CANADA
	*51421890	Fuse, 2AT 250V	(F902)	EUROPE, AUSTRALIA, U.K.
2 - 24	*55344560	Cover, Fuse PCB		EUROPE, U.K.
2 - 25	50173571	Drum, Brake		
2 - 26	50173393	Band Assy, Brake; R		
2 - 27	*51687350	PCB Assy, JOINT		JAPAN, GENERAL EXPORT
	*51677350	PCB, JOINT		All except JAPAN, GENERAL EXPORT
	50444560	Switch, Slide	(Part of 2 - 29)	JAPAN, GENERAL EXPORT
2 - 28	*55501630	Bracket, Joint PCB		
2 - 29	51700050	Capacitor, MP; (7+1.5) mfd x 2 250V		All except U.S.A., CANADA
	51714600	Capacitor, MP; 7 mfd x 2 250V		U.S.A., CANADA
2 - 30	*51815860	Resistor, Wire Wound; 40 ohm 30A		Non Flammable
2 - 31	*50332900	Bracket, Resistor		
2 - 32	*55523120	Chassis, Reel Motor; A		
2 - 33	*50161950	Stay, Reel Motor		
2 - 34	*55344930	Clamper, Cord; I		
2 - 35	*50432990	Plug, Voltage Selector		GENERAL EXPORT
2 - 36	*50435060	Socket, Voltage Selector		GENERAL EXPORT
2 - 37	*55501580	Bracket, Voltage Selector		GENERAL EXPORT

EXPLODED VIEW-3



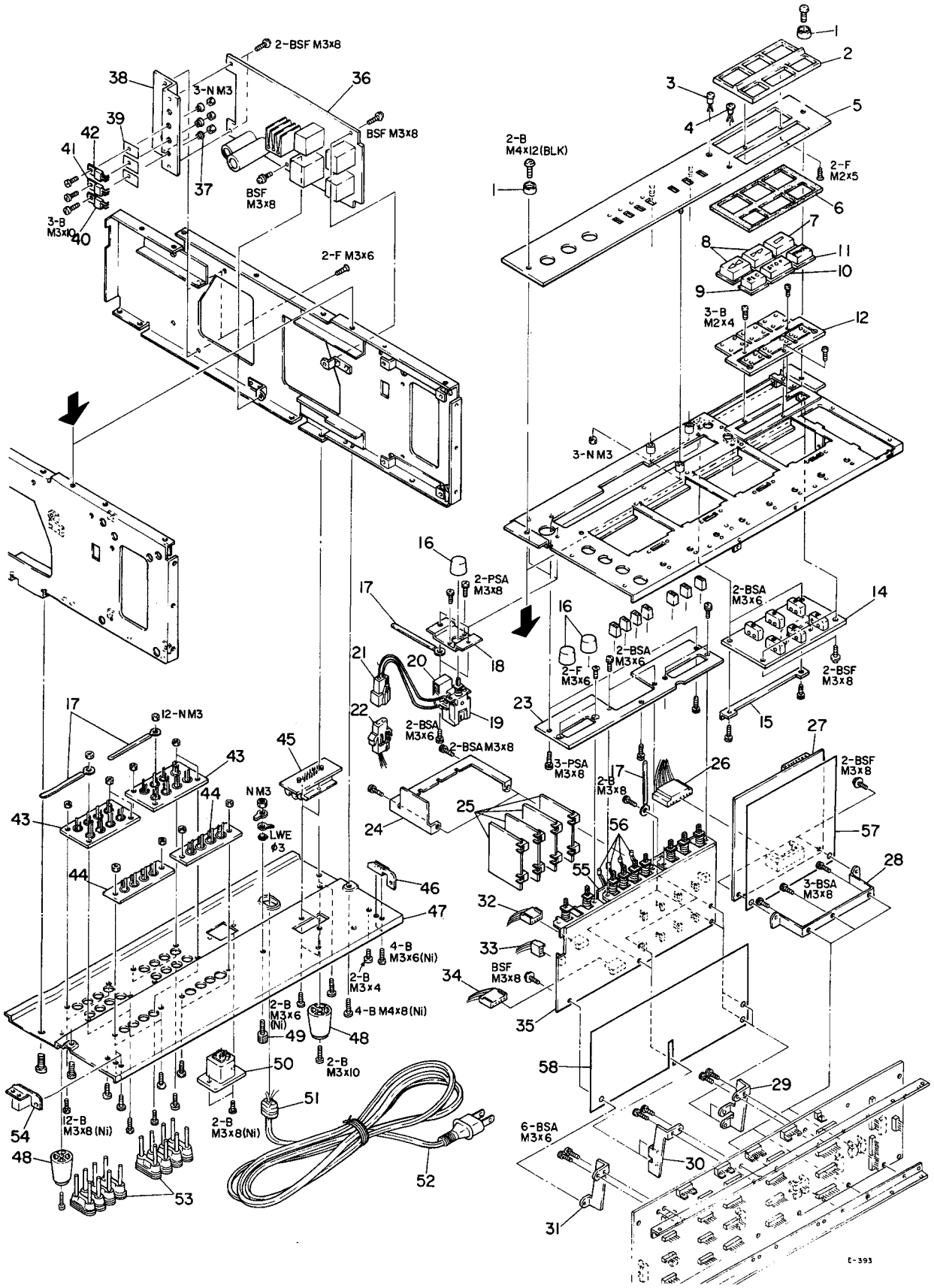
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
3 - 1	71050160	Motor Assy, Capstan; C	
3 - 2	55446260	Pulley, Motor; A	Part of 3 - 1
3 - 3	*55549970	Plate, Capstan Motor	
3 - 4	*55449170	Stay, Capstan Motor; A	
3 - 5	*55810380	Clam, Cord; A ϕ4	
3 - 6	*50277151	Angle, Thrust	
3 - 7	*50123860	Stay, Flywheel	
3 - 8	*50277233	Plate, Thrust	
3 - 9	55344680	Belt, Capstan	
3 - 10	*50123802	Flywheel	
3 - 11	50120451	Capstan Assy	
3 - 12	*50142190	Plate, Arm Support	
3 - 13	*55555130	Plate	
3 - 14	*55241880	Spring, Friction	
3 - 15	*55203670	Spring	
3 - 16	*55449060	Stay, Spring	
3 - 17	*55046551	Stopper Assy, Tension Arm	
3 - 18	*50221110	Spring, B	
3 - 19	*50276990	Collar, Rubber	
3 - 20	51502210	Var. Res., 5 k ohm - B	
3 - 21	*55555010	Bracket, Var. Res.	
3 - 22	55340110	Belt, Counter	
3 - 23	*50332520	Bracket, Counter	
3 - 24	50585140	Counter Assy	
3 - 25	*55400660	Holder, Arm; B	
3 - 26	55046430	Arm Assy, Tension; Left	
3 - 27	*55556180	Plate, Lifter	
3 - 28	50180432	Arm Assy, Tension; Right	
3 - 29	*50275690	Cushion, Rubber	
3 - 30	*55551910	Stopper, Pinch Roller	
3 - 31	51630040	Solenoid, Pinch Roller	
3 - 32	50422570	Diode, SIB01-06	
3 - 33	*51845880	Resistor, Meta.Film; 100 ohm 1W	
3 - 34	*50220441	Spring	
3 - 35	*50221152	Spring, Pressure	
3 - 36	*50140237	Arm Assy, Pinch Roller	
3 - 37	*50141821	Pivot, Roller Arm	
3 - 38	*55203110	Spring, Right Tension	
3 - 39	*50183921	Drum, Tension Arm	
3 - 40	*55203680	Spring	
3 - 41	51300010	Switch, Micro	
3 - 42	*50183932	Plate, Insulator	
3 - 43	*50182731	Limit Stop, Tension Arm	
3 - 44	*50221100	Spring, A	
3 - 45	50150242	Arm, Lifter; A	
3 - 46	*50152501	Pivot, Lifter Arm	
3 - 47	55046951	Arm Assy, Lifter; B	
3 - 48	*55449870	Pivot, Lifter Arm Assy	
3 - 49	*50114248	Panel, Top	
3 - 50	*55449880	Collar, Lifter Arm	
3 - 51	*55449290	Stay	

EXPLODED VIEW-4



REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
4 - 1	55345860	Knob, B-15	
4 - 2	*55330281	Escutcheon, Meter; A	
4 - 3	55345870	Knob	
4 - 4	50277111	Washer, Trim	
4 - 5	*55523020	Panel, Amplifier	
4 - 6	*55556140	Bracket, Jack; A	
4 - 7	*51687410	PCB Assy, PHONE AMP	
4 - 8	*51221680	Connector, Socket; 6P	
4 - 9	*55501570	Mask, Switch	
4 - 10	51502140	Var. Res., 100 k ohm	
4 - 11	51502130	Var. Res., 50 k ohm	
4 - 12	*51687460	PCB Assy, MIC JACK	
	*51677460	PCB, MIC JACK	Part of 4 - 12
	51240450	Jack, MIC	Part of 4 - 12
4 - 13	*51687480	PCB Assy, MIC ATT	
	*51687480	PCB, MIC ATT	Part of 4 - 13
	51310420	Switch, Slide	Part of 4 - 13
	*51813220	Resistor, Carbon; 47 k ohm ¼W 5%	Part of 4 - 13
4 - 14	*51687390	PCB Assy, MOTHER	
4 - 15	*55523080	Angle, Front	
4 - 16	*55523090	Angle, Rear	
4 - 17	*55532550	Chassis, Side; Right	
4 - 18	*55501720	Bracket, OSC	
4 - 19	*51221650	Connector, Socket; 3P	
4 - 20	*51221700	Connector, Socket; 8P	
4 - 21	*51222230	Connector, Socket; 4P (BLK)	
4 - 22	*51221660	Connector, Socket; 4P	
4 - 23	*51222270	Connector, Socket; 8P (BLK)	
4 - 24	*51222210	Connector, Socket; 2P (BLK)	
4 - 25	*51221640	Connector, Socket; 2P	
4 - 26	*55810380	Clamp, Cord; A	
4 - 27	51650560	Meter, VU	
4 - 28	*55501760	Bracket, Meter	
4 - 29	*55532540	Chassis, Side; Left	
4 - 30	*51687311	PCB Assy, REC/PLAY	
4 - 31	*55501860	Bracket, PCB; C	
4 - 32	*55523051	Bracket, A	
4 - 33	*55501740	Bracket	
4 - 34	*55532560	Bracket, Shield	
4 - 35	*51687470	PCB Assy, BIAS ADJ	
4 - 36	*51687420	PCB Assy, OSC	
4 - 37	*55501730	Bracket, OSC PCB	
4 - 38	*55449680	Stay	
4 - 39	*55021962	Chassis, Amplifier	
4 - 40	*55501840	Holder, PCB; A	
4 - 41	*55555600	Spacer, Escutcheon	

EXPLODED VIEW-5

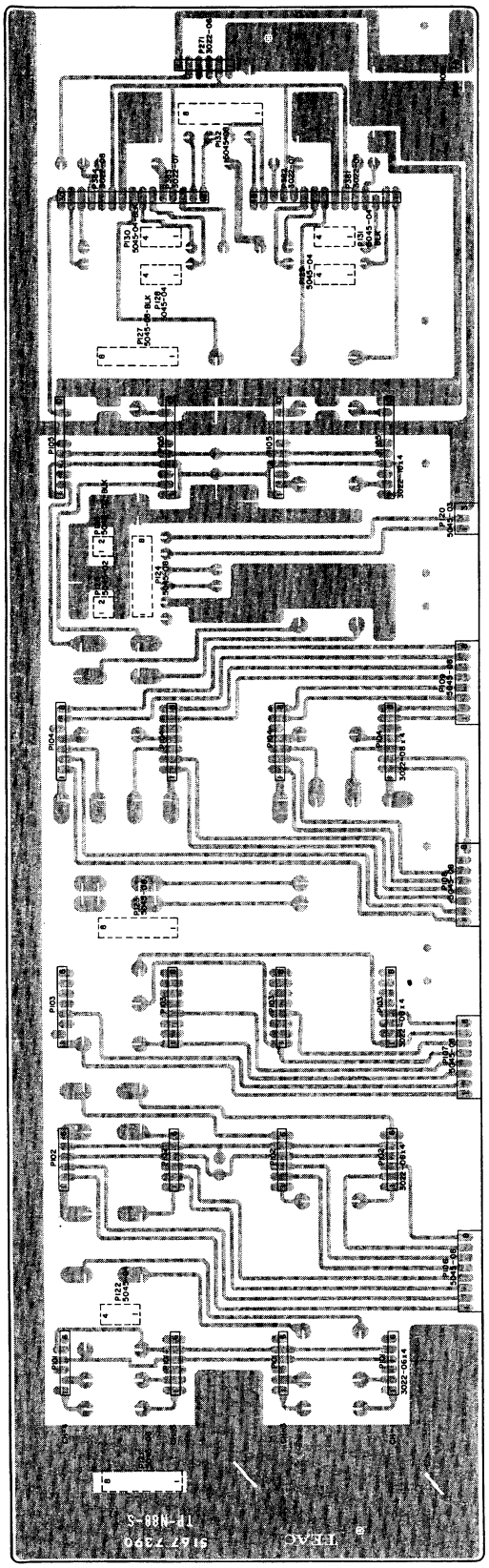


REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
5 - 1	*50277111	Washer, Trim	
5 - 2	55320060	Escutcheon, Control Button	
5 - 3	51430540	LED (Green)	
5 - 4	51430530	LED (Red)	
5 - 5	*55523001	Panel, Control	
5 - 6	*55343751	Spacer, Rubber	
5 - 7	*55340720	Button, C	
5 - 8	*55340730	Button, D	
5 - 9	*55300731	Button, REC	
5 - 10	*55340740	Button, STOP; B	
5 - 11	*55300741	Button, PAUSE	
5 - 12	*55556010	Hinge, Button; B	
5 - 13		(Not used)	
5 - 14	*51687360	PCB Assy, SWITCH	
	*51677360	PCB, SWITCH	Part of 5 - 14
	50446330	Switch, Micro	Part of 5 - 14
	*51220120	Connector, 10P	Part of 5 - 14
5 - 15	*55551770	Bracket, SWITCH PCB	
5 - 16	55343820	Knob, A	
5 - 17	*55810380	Clamp, Cord; A	
5 - 18	*55501780	Bracket, Power Switch	
5 - 19	51340340	Switch, Push	All except EUROPE, U.K.
	51340110	Switch, Push	EUROPE, U.K.
5 - 20	50529050	Spark Killer, 0.1 mfd + 120 ohm 400V AC	JAPAN
	50529060	Spark Killer, 0.33 mfd + 120 ohm 125V AC	U.S.A.
	50529110	Spark Killer, 0.33 mfd + 120 ohm 250V AC	CANADA
	50529070	Spark Killer, 0.01 mfd + 300 ohm 400V AC	GENERAL EXPORT, AUSTRALIA
	50529080	Spark Killer, 4700 pfd 250V AC	EUROPE, U.K.
5 - 21	*51220930	Connector Housing, Plug; 2P	
5 - 22	*51220920	Connector Housing, Socket; 2P	
5 - 23	*55532571	Bracket, Switch	
2 - 24	*55501670	Bracket, SINC EQ PCB	
5 - 25	*51687430	PCB Assy, SINC EQ	
5 - 26	*50438470	Connector, Housing, 10P	
5 - 27	*51687511	PCB Assy, CONTROL	
5 - 28	*55501701	Bracket, CONTROL PCB; C	
5 - 29	*55501800	Bracket, MOTHER PCB; B	
5 - 30	*55501810	Bracket, MOTHER PCB; C	
5 - 31	*55501790	Bracket, MOTHER PCB; A	
5 - 32	*51221680	Connector, Socket; 6P	
5 - 33	*51221650	Connector, Socket; 3P	
5 - 34	*51221700	Connector, Socket; 8P	
5 - 35	*51687440	PCB Assy, FUNCTION	
5 - 36	*51687330	PCB Assy, POWER SUPPLY	
5 - 37	*50332950	Tube, Insulating	Part of 5 - 36
5 - 38	*55531320	Heat Sink	Part of 5 - 36
5 - 39	*50332910	Plate, Insulating	Part of 5 - 36
5 - 40	*51450870	Transistor, 2SD313E	Part of 5 - 36
5 - 41	*51451290	Transistor, 2SB507E	Part of 5 - 36
5 - 42	*51451280	Transistor, 2SD613E	Part of 5 - 36
5 - 43	*51240530	Jack, Pin; 8P	
5 - 44	*51240520	Jack, Pin; 4P	
5 - 45	*21687320	PCB Assy, 12P CONNECTOR	
	*51677320	PCB, 12P CONNECTOR	Part of 5 - 45
	*50542040	Capacitor, Ceramic; 0.01 mfd 50V	Part of 5 - 45
	*55540990	Bracket, Connector	Part of 5 - 45
	*50438411	Connector, Socket; 12P	Part of 5 - 45
5 - 46	*55501690	Hinge, Connector Chassis; R	
5 - 47	*55523060	Chassis, Connector	
5 - 48	*55342670	Foot	
5 - 49	*50454071	Post, Grounding	
5 - 50	*51223390	Connector, Socket; 6P	
5 - 51	*55300470	Strain Relief, AC Power Cord	All except EUROPE, U.K., AUSTRALIA

(Continued on Page. 19)

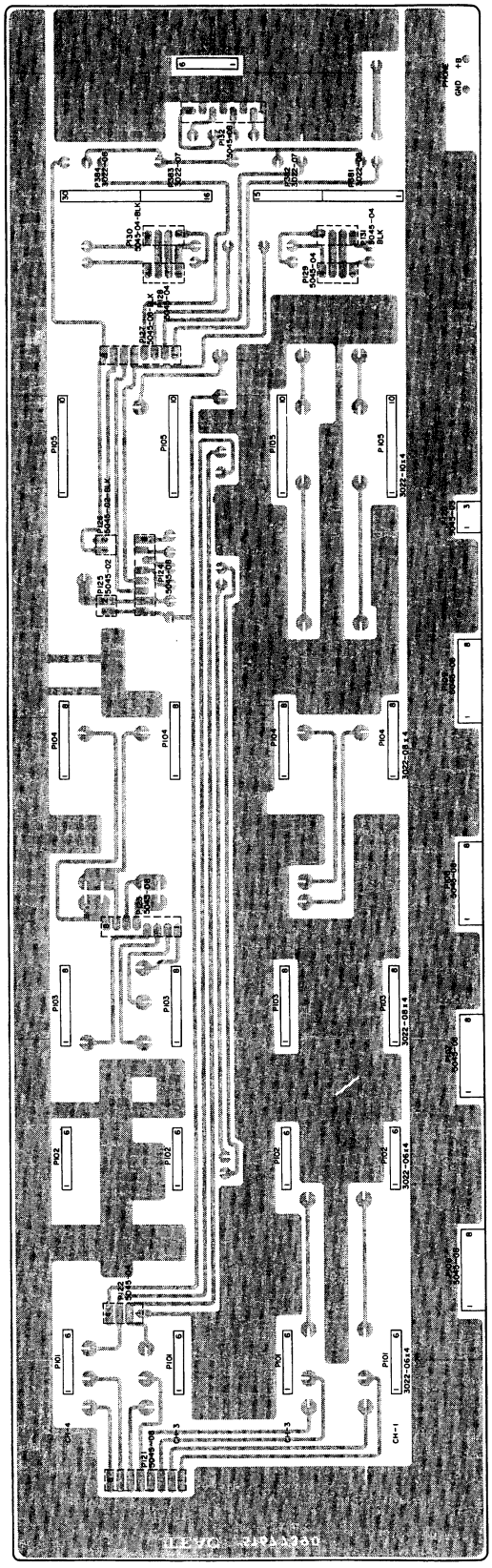
2. PC BOARD SECTION (Diagram)

2-1. MOTHER PCB ASSY



BOTTOM VIEW

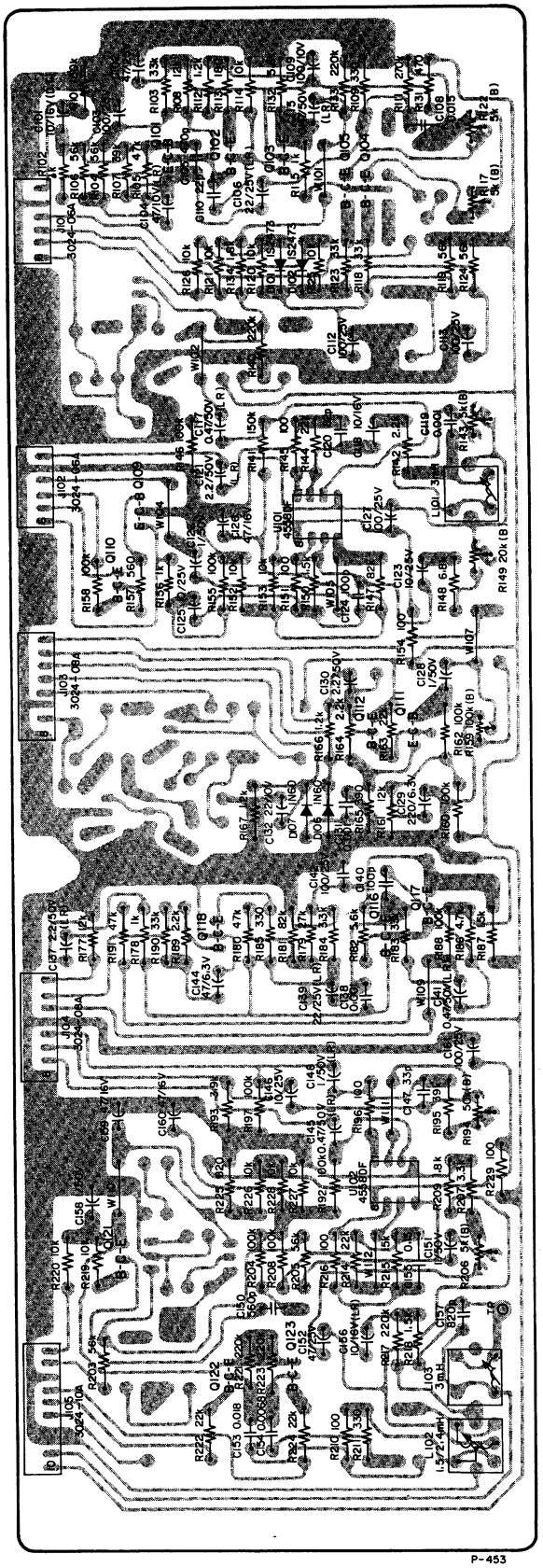
P-452



TOP VIEW

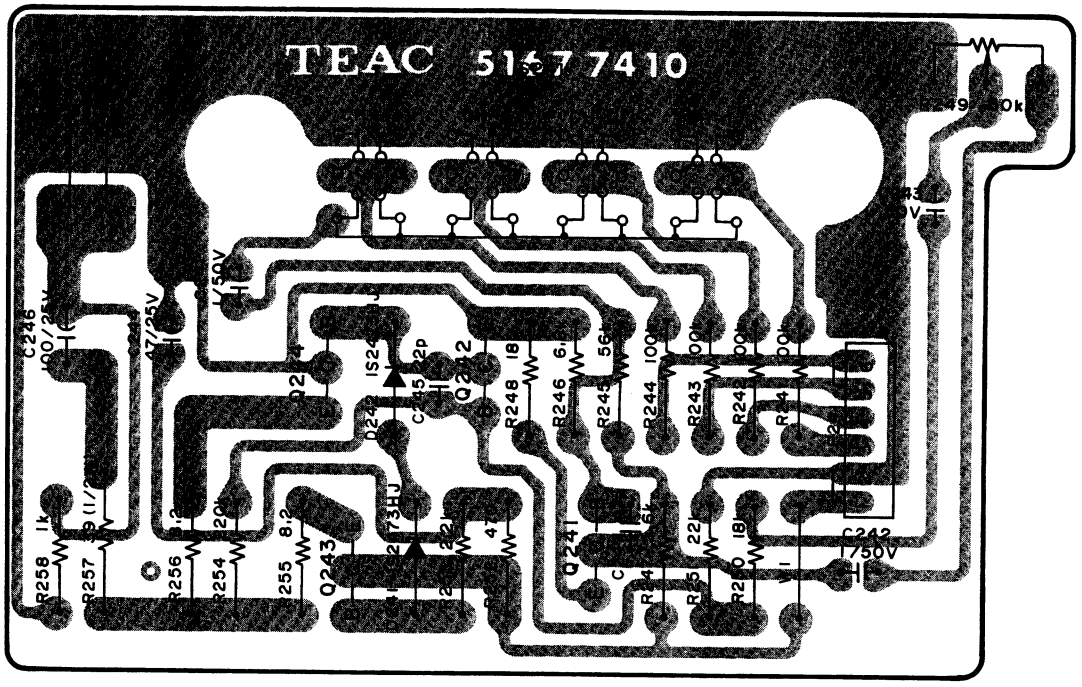
P-452

2-2. REC/PLAY AMP PCB ASSY



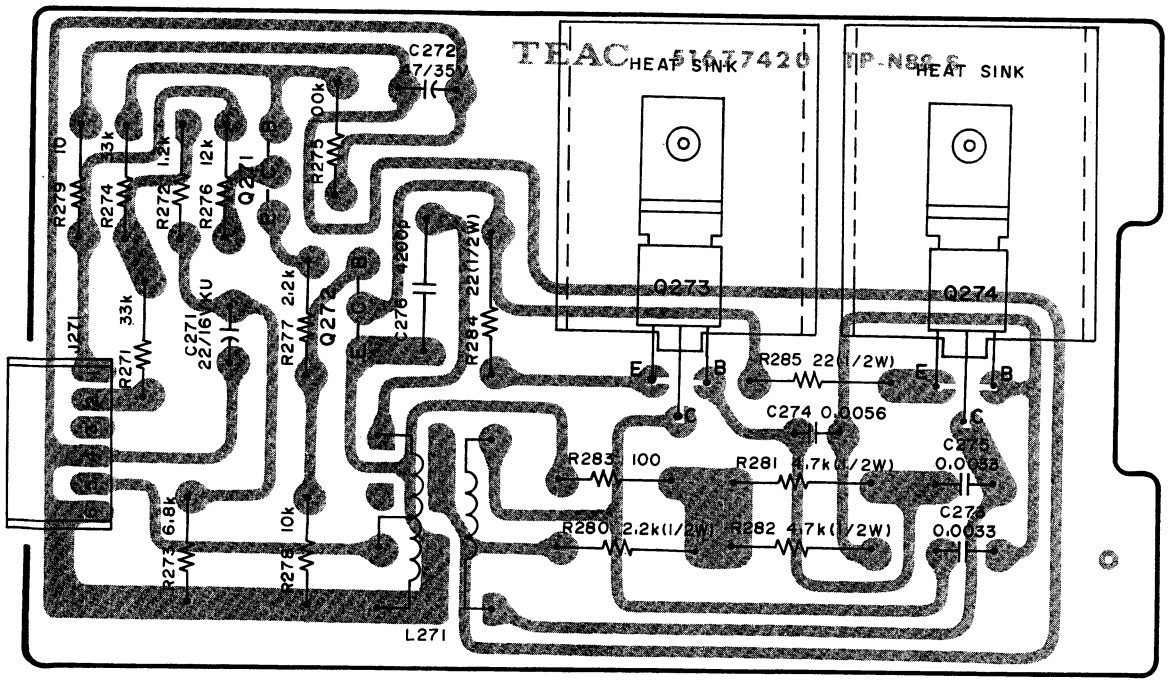
P-453

2-3. PHONE AMP PCB ASSY



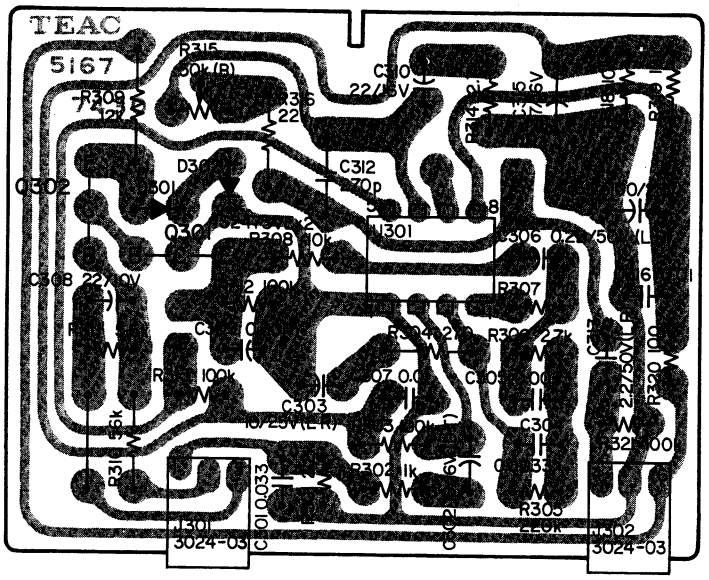
P-454

2-4. OSC PCB ASSY



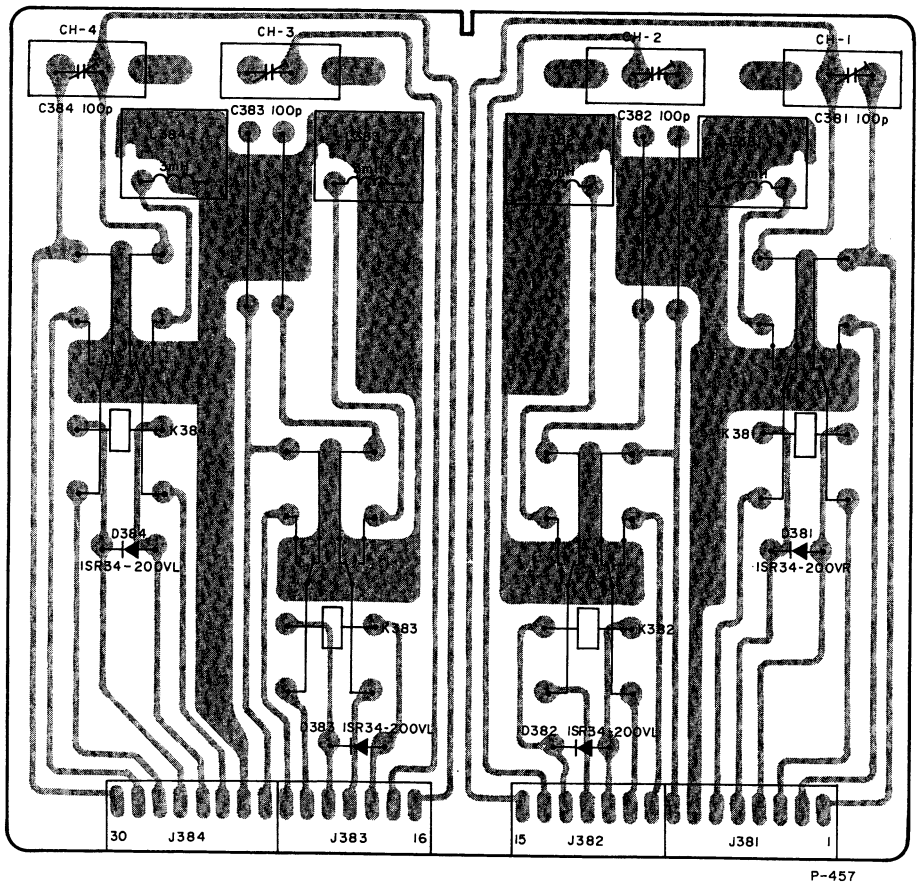
P-455

2-5. SINC EQ PCB ASSY



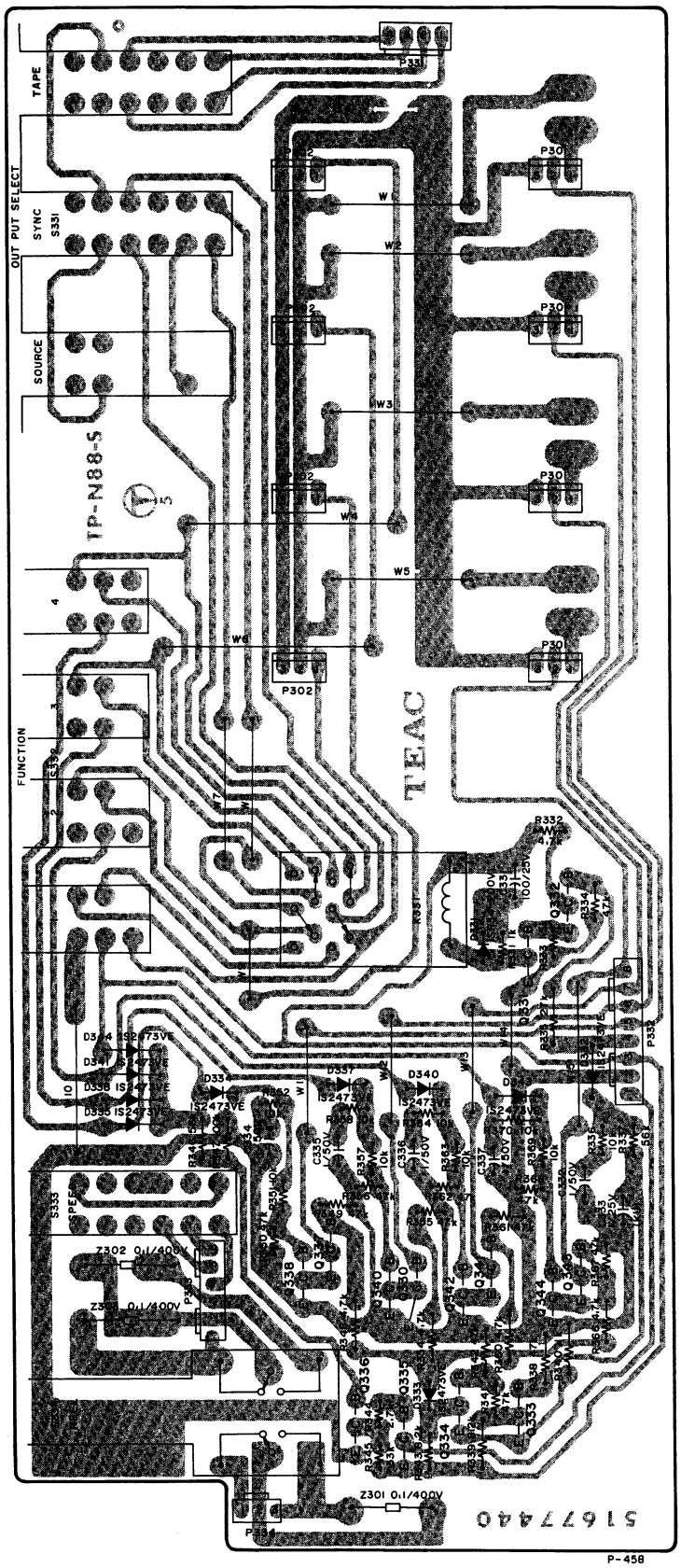
P-456

2-6. BIAS ADJ PCB ASSY

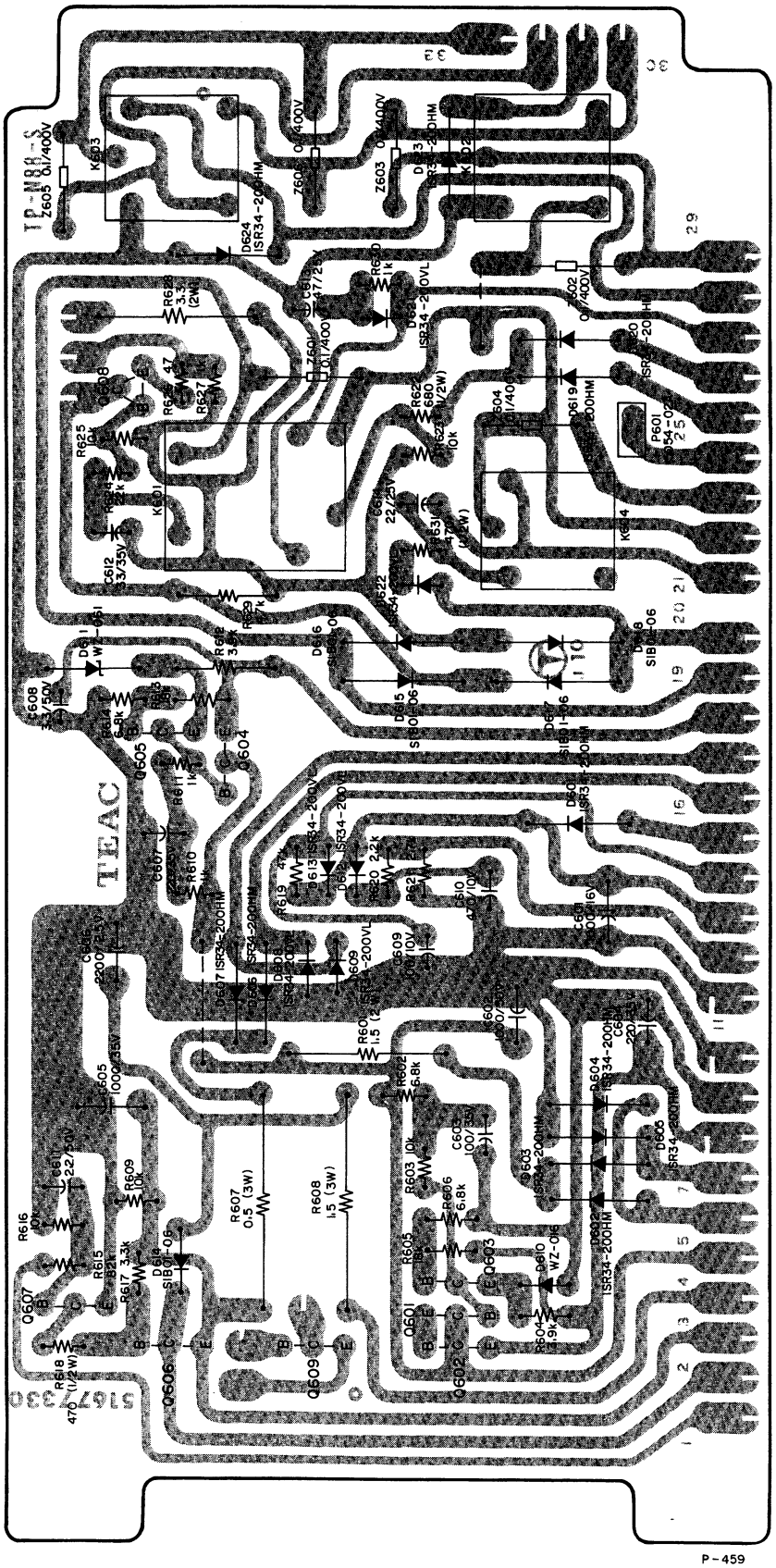


P-457

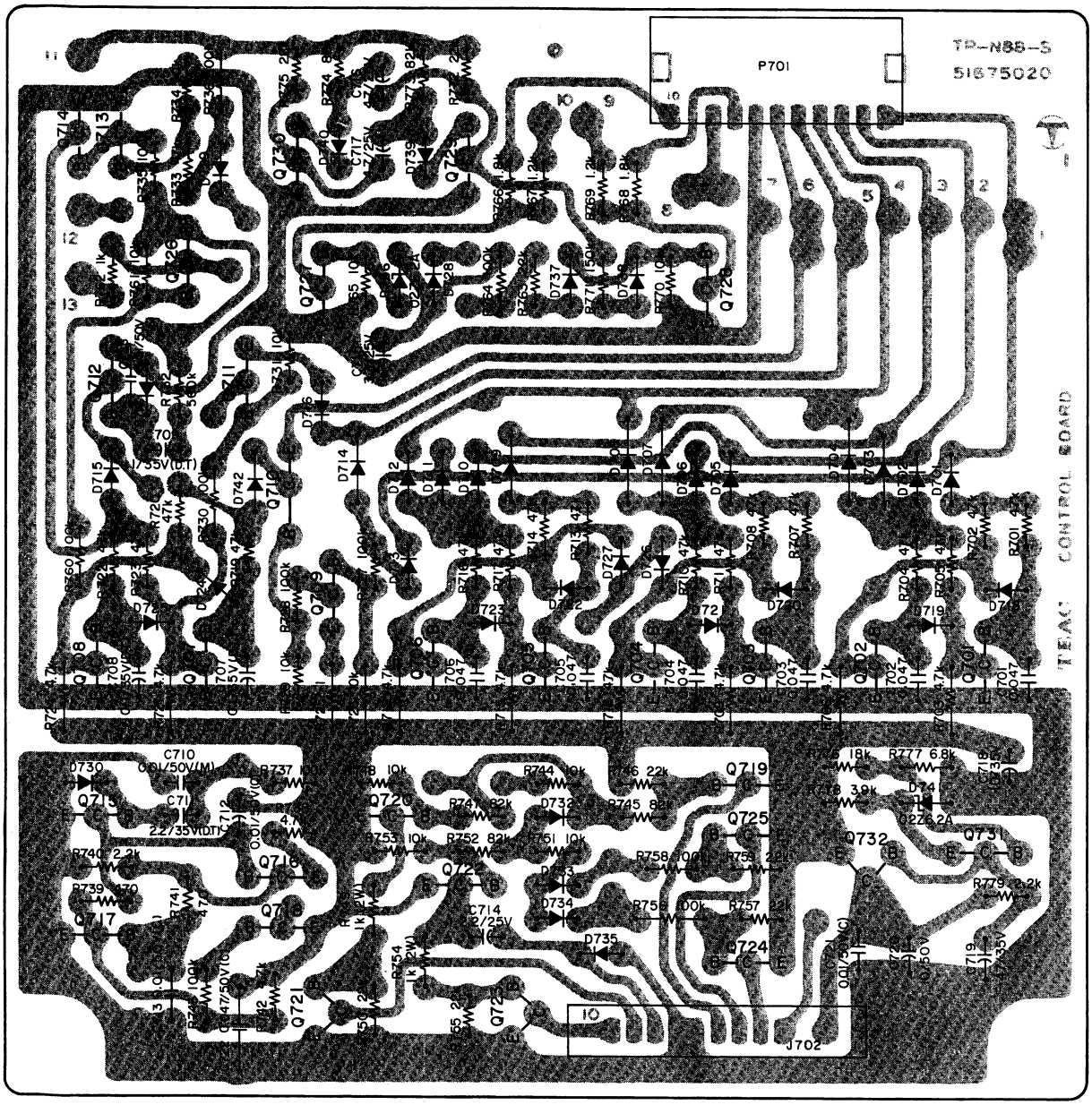
2-7. FUNCTION PCB ASSY



2-8. POWER SUPPLY PCB ASSY

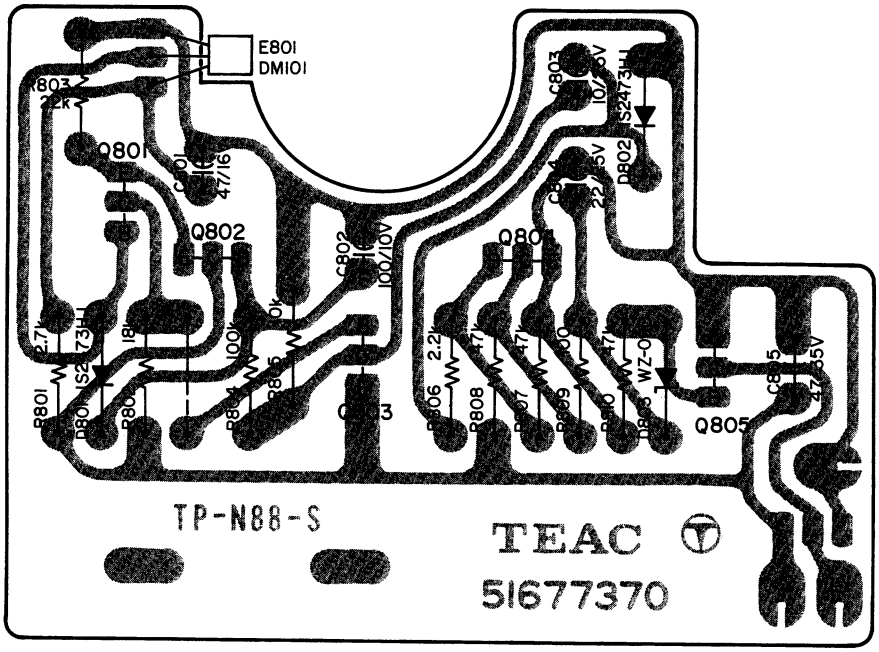


2-9. CONTROL PCB ASSY



P-460

2-10. STOP SENSOR PCB ASSY



P-461

(Continued from Page.11)

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
5 - 51	*55342690	Strain Relief, AC Power Cord	AUSTRALIA
	*55300540	Strain Relief, AC Power Cord	EUROPE, U.K.
5 - 52	*51272460	Cord Assy, AC Power	JAPAN, GENERAL EXPORT
	*51280830	Cord Assy, AC Power; B	U.S.A., CANADA
	*51280770	Cord Assy, AC Power	EUROPE,
	*51280780	Cord Assy, AC Power	AUSTRALIA
	*51280950	Cord Assy, AC Power	U.K.
5 - 53	51240510	Plug, Short Pin	
5 - 54	*55501680	Hinge, Connector Chassis; L	
5 - 55	*51687450	PCB Assy, LED	
	*51677450	PCB, LED	Part of 5 - 55
	*50570960	Resistor, Carbon; 3.9 k ohm ¼W 5%	Part of 5 - 55
5 - 56	*51430470	LED (Red)	
5 - 57	*55556230	Protector, A	
5 - 58	*55556240	Protector, B	

2. PC BOARD SECTION (Parts List)

2-1. MOTHER PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51687390	PCB Assy, MOTHER
	51677390	PCB, MOTHER
	CONNECTOR	
P101, P102	51223580	Plug, 6P
P103, P104	51223600	Plug, 8P
P105	51223620	Plug, 10P
P106~P109	51221320	Plug, 8P
P120	51221270	Plug, 3P
P121	51221320	Plug, 8P
P122	51221280	Plug, 4P
P123, P124	51221320	Plug, 8P
P125	51221260	Plug, 2P
P126	51221830	Plug, 8P
P127	51221890	Plug, 8P
P128, P129	51221280	Plug, 4P
P130, P131	51221850	Plug, 4P
P132	51221320	Plug, 8P

2-2. REC/PLAY AMP PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51687311	PCB Assy, REC/PLAY AMP
	51677710	PCB, REC/PLAY AMP
	IC's	
U101, U102	51470240	NJM4558DF
	TRANSISTORS	
Q101	50424610	2SC1327T
Q102	50424210	2SA666IS
Q103	50423830	2SC536F
Q104, Q105	51450920	2SC1740LNS
Q109	51450860	2SC1636-2
Q110	51450950	2SA826LNS
Q111	51450920	2SC1740LNS
Q112	51450950	2SA826LNS
Q116	50424950	2SC1222E
Q117	50424210	2SA666IS
Q118	51450920	2SC1740LNS
Q121~Q123	51450920	2SC1740LNS
	DIODES	
D101, D102	51431180	1S2473HJ
D106, D107	50422130	1N60
	RESISTORS	
	All resistors are rated ±5% tolerance, ¼ watt and of carbon type unless otherwise noted.	
R101	51815340	150 k ohm
R102	51814820	1 k ohm

REF. NO.	PARTS NO.	DESCRIPTION
R103	51815180	33 k ohm
R104	51815240	56 k ohm
R105	51815220	47 k ohm
R106	51815240	56 k ohm
R107	51815200	39 k ohm
R108	51815080	12 k ohm
R109	51814700	330 ohm
R111	51815400	270 k ohm
R112	51814840	1.2 k ohm
R113	51814640	180 ohm
R114	51815060	10 k ohm
R115	51814820	1 k ohm
R118	51815180	33 k ohm
R119	51815240	56 k ohm
R120, R121	51815060	10 k ohm
R123	51815180	33 k ohm
R124	51815240	56 k ohm
R125, R126	51815060	10 k ohm
R131	51818640	470 ohm Non Flammable
R132	51815000	5.6 k ohm
R133	51815380	220 k ohm
R134	51814880	1.8 k ohm
R140	51815380	220 k ohm
R141	51815340	150 k ohm
R142	51814900	2.2 k ohm
R144	51815140	22 k ohm
R145	51814580	100 ohm
R146	51815300	100 k ohm
R147	51815280	82 k ohm
R148	51815020	6.8 k ohm
R150	51815100	15 k ohm
R151	51814580	100 ohm
R152, R153	51815060	10 k ohm
R154	51818480	100 ohm Non Flammable
R155	51815300	100 k ohm
R156	51814820	1 k ohm
R157	51814760	560 ohm
R158	51815300	100 k ohm
R160	51815300	100 k ohm
R161	51815080	12 k ohm
R162	51815300	100 k ohm
R163	51815140	22 k ohm
R164	51814900	2.2 k ohm
R165	51814720	390 ohm
R166, R167	51814840	1.2 k ohm
R177	51815080	12 k ohm
R178	51814820	1 k ohm
R179	51815160	27 k ohm
R180	51815220	47 k ohm
R181	51815280	82 k ohm
R182	51815000	5.6 k ohm
R183	51815180	33 k ohm
R184	51814940	3.3 k ohm
R185	51814700	330 ohm
R186	51814980	4.7 k ohm
R187	51814860	1.5 k ohm
R188	51815300	100 k ohm
R189	51814900	2.2 k ohm
R190	51815180	33 k ohm
R191	51815220	47 k ohm
R192	51815300	100 k ohm
R193	51814960	3.9 k ohm
R195	51815200	39 k ohm

REF. NO.	PARTS NO.	DESCRIPTION
R196	51814580	100 ohm
R197	51815300	100 k ohm
R203	51815240	56 k ohm
R204	51815300	100 k ohm
R205	51815200	39 k ohm
R207	51814580	100 ohm
R208	51815300	100 k ohm
R209	51815240	56 k ohm
R210	51815300	100 k ohm
R205	51815240	56 k ohm
R207	51814940	3.3 k ohm
R208	51815300	100 k ohm
R209	51814880	1.8 k ohm
R210	51814580	100 ohm
R211	51814700	330 ohm
R214	51815140	22 k ohm
R215	51815100	15 k ohm
R216	51814580	100 ohm
R217	51815380	220 k ohm
R218	51814860	1.5 k ohm
R219, R220	51815060	10 k ohm
R221	51815380	220 k ohm
R222	51815140	22 k ohm
R223	51815380	220 k ohm
R224	51815140	22 k ohm
R225	51814800	820 ohm
R226~R228	51815060	10 k ohm
R229	51818480	100 ohm Non Flammable

CAPACITORS

C101	50547130	Dip. Tant.	10 mfd	16V
C102	50554490	Elec.	47 mfd	25V
C103	50554170	Elec.	100 mfd	25V
C104	51700940	Elec.	47 mfd	10V (LR)
C105	50547560	Dip. Mica	470 pfd	50V
C106	51700830	Elec.	22 mfd	25V (LR)
C108	50548870	Mylar	0.015 mfd	50V 5%
C109	50554570	Elec.	100 mfd	10V
C110	50543820	Dip. Mica	22 pfd	50V
C112, C113	50554170	Elec.	100 mfd	25V
C115	51700850	Elec.	0.47 mfd	50V (LR)
C117	51700850	Elec.	0.47 mfd	50V (LR)
C118	50554050	Elec.	10 mfd	16V
C119	50548780	Mylar	0.001 mfd	50V 5%
C120	50547580	Dip. Mica	82 pfd	50V
C121	51700870	Elec.	2.2 mfd	50V (LR)
C122	50554540	Elec.	1 mfd	50V
C123	50554040	Elec.	10 mfd	25V
C124	50547440	Dip. Mica	100 pfd	50V
C125	50554040	Elec.	10 mfd	25V
C126	50554010	Elec.	47 mfd	16V
C127	50554170	Elec.	100 mfd	25V
C128	50554540	Elec.	1 mfd	50V
C129	50554330	Elec.	220 mfd	6.3V
C130	50554980	Elec.	2.2 mfd	50V
C131	50548320	Mylar	0.001 mfd	50V 10%
C132	50554720	Elec.	22 mfd	10V
C137	51700870	Elec.	2.2 mfd	50V (LR)
C138	50548320	Mylar	0.001 mfd	50V 10%
C139	51700830	Elec.	22 mfd	25V (LR)
C140	50547440	Dip. Mica	100 pfd	50V
C141	51700850	Elec.	0.47 mfd	50V (LR)
C142, C143	50554170	Elec.	100 mfd	25V
C144	50554030	Elec.	47 mfd	6.3V
C145	51700850	Elec.	0.47 mfd	50V (LR)
C146	50554040	Elec.	10 mfd	25V
C147	50543510	Dip. Mica	33 pfd	50V
C148	51700860	Elec.	1 mfd	50V (LR)
C150	51700440	Polyst.	560 pfd	50V
C151	50554540	Elec.	1 mfd	50V
C152	50554490	Elec.	47 mfd	25V
C153	50548970	Mylar	0.018 mfd	50V 5%
C154	50548930	Mylar	0.0068 mfd	50V 5%
C155	50548310	Mylar	0.15 mfd	50V 10%
C156	51700770	Elec.	10 mfd	16V (LR)
C157	50543440	Polyst.	820 pfd	50V 10%
C158	50554540	Elec.	1 mfd	50V
C159, C160	50554010	Elec.	47 mfd	16V
C161	50554170	Elec.	100 mfd	25V

VARIABLE RESISTORS

R117, R122	51501530	Semi-fixed, 5 k ohm - B
R143	51501530	Semi-fixed, 5 k ohm - B
R149	51501550	Semi-fixed, 20 k ohm - B
R159	51501570	Semi-fixed, 100 k ohm - B
R194	51501560	Semi-fixed, 50 k ohm - B
R206	51501530	Semi-fixed, 5 k ohm - B

COILS

L101	51600440	Trap, 3 mH
L102	51600450	Record EQ, 1.5/2.4 mH
L103	51600440	Trap, 3 mH

MISCELLANEOUS

	51812080	Jumper, JPW02-F10 (9 used)
	57240420	Pin, F-3 type
J101, J102	51223770	Connector, Socket; 6P
J103, J104	51223790	Connector, Socket; 8P
J105	51223810	Connector, Socket; 10P

2-3. PHONE AMP PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51687410	PCB Assy, PHONE AMP
	51677410	PCB, PHONE AMP

TRANSISTORS

Q241, Q242	51450920	2SC1740LNS
Q243	51450820	2SC2060Q
Q244	51450840	2SA934Q

DIODES

D241, D242	51431180	1S2473HJ

REF. NO.	PARTS NO.	DESCRIPTION
		RESISTORS
		All resistors are rated ±5% tolerance, ¼ watt and of carbon type unless otherwise noted.
R241~R244	51831300	100 k ohm
R245	51831240	56 k ohm
R246	51831020	6.8 k ohm
R247	51831000	5.6 k ohm
R248	51830640	180 ohm
R250	51831120	18 k ohm
R251	51831140	22 k ohm
R252	51818640	470 ohm Non Flammable
R253	51830900	2.2 k ohm
R254	51831380	220 k ohm
R255, R256	51830320	8.2 ohm
R257	51800480	30 ohm ½W
R258	51834820	1 k ohm
		CAPACITORS
C241~C243	50554540	Elec. 1 mfd 50V
C244	50554490	Elec. 47 mfd 25V
C245	50543820	Dip. Mica 22 pfd 50V
C246	50554170	Elec. 100 mfd 25V
C247	50547420	Dip. Mica 47 pfd 50V
		VARIABLE RESISTOR
R249	51502150	50 k ohm - A
		MISCELLANEOUS
	51812080	Jumper, JPW02-F10 (1 used)
S241	51340780	Switch, Push; 4-gang
J241	51240460	Jack, PHONES
	55501870	Bracket, Jack
	55449680	Spacer
J241	51221300	Connector, Plug; 6P

2-4. OSC PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51687420	PCB Assy, OSC
	51677420	PCB, OSC
		TRANSISTORS
Q271	51450920	2SC1740LNS
Q272	51450820	2SC2060Q
Q273, Q274	50424450	2SC1226AR
		RESISTORS
		All resistors are rated ±5% tolerance, ¼ watt and of carbon type unless otherwise noted.
R271	51831180	33 k ohm
R272	51830840	1.2 k ohm
R273	51831020	6.8 k ohm
R274	51831180	33 k ohm
R275	51831300	100 k ohm
R276	51831080	12 k ohm
R277	51830900	2.2 k ohm
R278	51831060	10 k ohm
R279	51818240	10 ohm Non Flammable
R280	51800900	2.2 k ohm ½W
R281, R282	51800980	4.7 k ohm ½W
R283	51830580	100 ohm
R284, R285	51800420	22 ohm ½W
		CAPACITORS
C271	50549780	Elec. 22 mfd 16V (KU)
C272	50554520	Elec. 47 mfd 35V
C273	50548810	Mylar 0.0033 mfd 50V
C274	50548920	Mylar 0.0056 mfd 50V 5%
C275	50548810	Mylar 0.0033 mfd 50V 5%
C276	50544040	Mica 0.0042 mfd 250V 5%
		MISCELLANEOUS
L271	50563231	Coil, OSC
J271	51223770	Connector, Socket; 6P
	55340640	Tube, Insulating (2 used)
	55541630	Plate, Insulating (2 used)
	50234870	Heat Sink

2-5. SINC EQ PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51687430	PCB Assy, SINC EQ
	51677430	PCB, SINC EQ
		IC
U301	51470280	NJM4558DD
		TRANSISTORS
Q301	51450920	2SC1740LNS
Q302	51450950	2SA826LNS
		DIODE
D301, D302	50425170	1S2473VE
		RESISTORS
		All resistors are rated ±5% tolerance, ¼ watt and of carbon type unless otherwise noted.
R301	50570900	2.2 k ohm
R302	50570820	1 k ohm
R303	50571300	100 k ohm
R304	50570680	270 ohm
R305	50571380	220 k ohm
R306	50570920	2.7 k ohm

REF. NO.	PARTS NO.	DESCRIPTION
R307	50570580	100 ohm
R308	50571060	10 k ohm
R309	50571080	12 k ohm
R310	50571240	56 k ohm
R311	50571000	5.6 k ohm
R312, R313	50571300	100 k ohm
R314	50570920	2.7 k ohm
R316	50571140	22 k ohm
R317	50570580	100 ohm
R318, R319	50571060	10 k ohm
R320	51818480	100 ohm Non Flammable
R321	50571300	100 k ohm
	CAPACITORS	
C301	50549000	Mylar 0.033 mfd 50V 5%
C302	50547130	Dip. Tant. 10 mfd 16V
C303	51700820	Elec. 10 mfd 25V (LR)
C304	50548870	Mylar 0.015 mfd 50V 5%
C305	50548810	Mylar 0.0033 mfd 50V 5%
C306	51703430	Elec. 0.22 mfd 50V (LR)
C307	50548020	Mylar 0.01 mfd 50V 10%
C308	50554720	Elec. 22 mfd 10V
C309	50548320	Mylar 0.001 mfd 50V 10%
C310	50554880	Elec. 22 mfd 16V
C311	51703430	Elec. 0.22 mfd 50V (LR)
C312	50547370	Dip. Mica 270 pfd 50V 5%
C313	51700870	Elec. 2.2 mfd 50V (LR)
C315	50554010	Elec. 47 mfd 16V
C316	50548020	Mylar 0.01 mfd 50V 10%
C317	50554170	Elec. 100 mfd 25V
	VARIABLE RESISTOR	
R315	51501560	Semi-fixed, 50 k ohm - B
	MISCELLANEOUS	
J301, J302	51223740	Connector, Socket; 3P
	51812090	Jumper, JPW-02 (1 used)

2-6. BIAS ADJ PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51687470	PCB Assy, BIAS ADJ
	51677470	PCB, BIAS ADJ
D381~D384	51431160	Diode, 1SR34-200VL
K381~K384	50611280	Relay, DPDT
L381~L384	51600440	Coil, Trap; 3mH
C381~C384	51703250	Capactor, Trimmer; 100 pfd
J381, C384	51223790	Connector, Socket; 8P
J382, C383	51223780	Connector, Socket; 7P
	51812060	Jummper, JPW02-F5 (4 used)

2-7. FUNCTION PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51687440	PCB Assy, FUNCTION
	51677440	PCB, FUNCTION
	TRANSISTORS	
Q331	51450820	2SC2060Q
Q332~Q334	50423830	2SC536F
Q335	50425530	2SA733P
Q336~Q344	50423830	2SC546F
	DIODES	
D331	51431160	1SR34-200VL
D332	50425170	1S2473VE
D333	50425140	Zener, WZ-061
D334, D335	50425170	1S2473VE
D336~D338	50425170	1S2473VE
D340, D341	50425170	1S2473VE
D343, D344	50425170	1S2473VE
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and ¼ watt.	
R331	50570820	1 k ohm
R332	50570980	4.7 k ohm
R333	50570860	1.5 k ohm
R334	50571220	47 k ohm
R335	50571160	27 k ohm
R336	50571060	10 k ohm
R337	50571240	56 k ohm
R338	50571220	47 k ohm
R339	50571040	8.2 k ohm
R340	50570820	1 k ohm
R341, R342	50571220	47 k ohm
R343	50571040	8.2 k ohm
R344	50570920	2.7 k ohm
R345	50571180	33 k ohm
R346	50571240	56 k ohm
R347	50571300	100 k ohm
R348	50570980	4.7 k ohm
R349, R350	50571220	47 k ohm
R351, R352	50571060	10 k ohm
R354	50570980	4.7 k ohm
R355, R356	50571220	47 k ohm
R357, R358	50571060	10 k ohm
R360	50570980	4.7 k ohm
R361, R362	50571220	47 k ohm
R363, R364	50571060	10 k ohm
R366	50570980	4.7 k ohm
R367, R368	50571220	47 k ohm
R369, R370	50571060	10 k ohm
	CAPACITORS	
C331	50554170	Elec. 100 mfd 25V
C332	50554540	Elec. 1 mfd 50V
C333	50549600	Elec. 1 mfd 25V (KU)
C334~C337	50554540	Elec. 1 mfd 50V
Z301~Z303	50549920	Meta. Mylar 0.1 mfd 400 VAC

REF. NO.	PARTS NO.	DESCRIPTION
	RELAY	
K331	50611010	4PDT
	MISCELLANEOUS	
P301	51221270	Connector, Plug; 3P (4 used)
P302	51221270	Connector, Plug; 3P (4 used)
P331	51221280	Connector, Plug; 4P
P332	51221320	Connector, Plug; 8P
P333	51221300	Connector, Plug; 6P
P334	51221270	Connector, Plug; 3P
S331	51340760	Switch, Push; 3-gang
S332	51340770	Switch, Push; 4-gang
S333, S334	51340750	Switch, Push; 2-gang
	51687450	PCB Assy, LED
	51677450	PCB, LED (part of PCB Assy)
R353, R359	50570960	Resistor, Carbon; 3.9 k ohm ¼W 5% (Part of PCB Assy)
R365, R371	50570960	Resistor, Carbon; 3.9 k ohm ¼W 5% (Part of PCB Assy)

2-8. POWER SUPPLY PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51687330	PCB Assy, POWER SUPPLY
	51677330	PCB, POWER SUPPLY
	TRANSISTORS	
Q601	50426250	2SC1318S
Q602	51450870	2SD313E
Q603	50423830	2SC536F
Q604	51450870	2SD313E
Q605	50423830	2SC536F
Q606	51451290	2SB507E
Q607	50426250	2SC1318S
Q608	51450770	2SD600KE
Q609	51451280	2SD613E
	DIODES	
D601~D607	51431100	1SR34-200
D608, D609	51431160	1SR34-200VL
D610, D611	50425140	Zener, WZ-061
D612, D613	51431160	1SR34-200VL
D614~D618	50422570	SIB01-06
D619, D620	51431100	1SR34-200
D621, D622	51431160	1SR34-200VL
D623, D624	51431100	1SR34-200

RESISTORS

All resistors are rated ±5% tolerance, ¼ watt and of carbon type unless otherwise noted.

REF. NO.	PARTS NO.	DESCRIPTION
R601	51843020	1.5 ohm 2W Cement
R602	50571020	6.8 k ohm
R603	50571060	10 k ohm
R604	50570960	3.9 k ohm
R605	50571120	18 k ohm
R606	50571020	6.8 k ohm
R607	50518040	0.5 ohm 3W Cement
R608	50520340	1.5 ohm 3W Cement
R609	50571060	10 k ohm
R610, R611	50570820	1 k ohm
R612	50572960	3.9 k ohm
R613	50571120	18 k ohm
R614	50571020	6.8 k ohm
R615	50571280	82 k ohm
R616	50571060	10 k ohm
R617	50570940	3.3 k ohm
R618	50574740	470 ohm ½W
R619	50571220	47 k ohm
R620	50570900	2.2 k ohm
R621	50570920	2.7 k ohm
R622	50574780	680 ohm ½W
R623	50571060	10 k ohm
R624	50571140	22 k ohm
R625	50571060	10 k ohm
R626	50570500	47 ohm
R627	50570820	1 k ohm
R628	51843060	3.3 ohm 2W Cement
R629	50573220	47 k ohm
R630	50570820	1 k ohm
R631	50574740	470 ohm ½W
	CAPACITORS	
C601	50554890	Elec. 1000 mfd 16V
C602	50555850	Elec. 1000 mfd 50V
C603	50554630	Elec. 100 mfd 35V
C604	50554380	Elec. 220 mfd 35V
C605	51700110	Elec. 1000 mfd 35V
C606	50557140	Elec. 2200 mfd 25V
C607	50554380	Elec. 220 mfd 35V
C608	50555730	Elec. 3.3 mfd 50V
C609	50554570	Elec. 100 mfd 10V
C610	50555380	Elec. 470 mfd 10V
C611	50554980	Elec. 2.2 mfd 50V
C612	50554750	Elec. 33 mfd 35V
C613	50554490	Elec. 47 mfd 25V
C614	50554950	Elec. 22 mfd 25V
Z601~Z606	50549920	Meta. Mylar 0.1 mfd 400V
	RELAYS	
K601	50611310	LC2-N
K602~K604	50611340	LC1-N
	MISCELLANEOUS	
P601	51221260	Connector, Plug; 2P
	51812080	Jumper, JPW02-F10 (1 used)
	51812070	Jumper, JPW02-F8 (1 used)
	50332950	Tube, Insulating (4 used)
	50332910	Plate, Insulating (4 used)
	55531320	Heat Sink
	55501660	Heat Sink, B

2-9. CONTROL PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51687511	PCB Assy, CONTROL
	51675022	PCB, CONTROL
	TRANSISTORS	
Q701~Q708	51450910	2SC945AK
Q709	50425530	2SA733P
Q710~Q714	51450910	2SC945AK
Q715	50426250	2SC1318S
Q716	50425530	2SA733P
Q717	51450910	2SC945AK
Q718~Q720	50425530	2SC1318S
Q721	51450770	2SD600KE
Q722	50425530	2SA733P
Q723	51450870	2SD313E
Q724~Q726	50425530	2SA733P
Q727~Q731	51450910	2SC945AK
Q732	51450870	2SD313E
	DIODES	
D701~D730	50425170	1S2473VE
D732~D735	50425170	1S2473VE
D736	50425540	Zener, RD6.2EB
D737~D740	50425170	1S2473VE
D741	50425540	Zener, RD6.2EB
D742	50425170	1S2473VE
	RESISTORS **All resistors are rated ±5% tolerance, ¼ watt and of carbon type unless otherwise noted.**	
R701, R702	50571220	47 k ohm
R703	50570980	4.7 k ohm
R704, R705	50571220	47 k ohm
R706	50570980	4.7 k ohm
R707, R708	50571220	47 k ohm
R709	50570980	4.7 k ohm
R710, R711	50571220	47 k ohm
R712	50570980	4.7 k ohm
R713, R714	50571220	47 k ohm
R715	50570980	4.7 k ohm
R716, R717	50571220	47 k ohm
R718	50570980	4.7 k ohm
R719, R720	50571220	47 k ohm
R721	50570980	4.7 k ohm
R722, R723	50571220	47 k ohm
R724	50570980	4.7 k ohm
R725	50570110	1 ohm
R726	50571060	10 k ohm
R727, R728	50571300	100 k ohm
R729	50571060	10 k ohm
R730	50571300	100 k ohm
R731	50571060	10 k ohm
R732	50571480	560 k ohm
R733	50571220	47 k ohm
R734	50571060	10 k ohm
R735~R737	50571300	100 k ohm
R738	50570980	4.7 k ohm
R739	50570740	470 ohm
R740	50570900	2.2 k ohm
R741	50570740	470 ohm

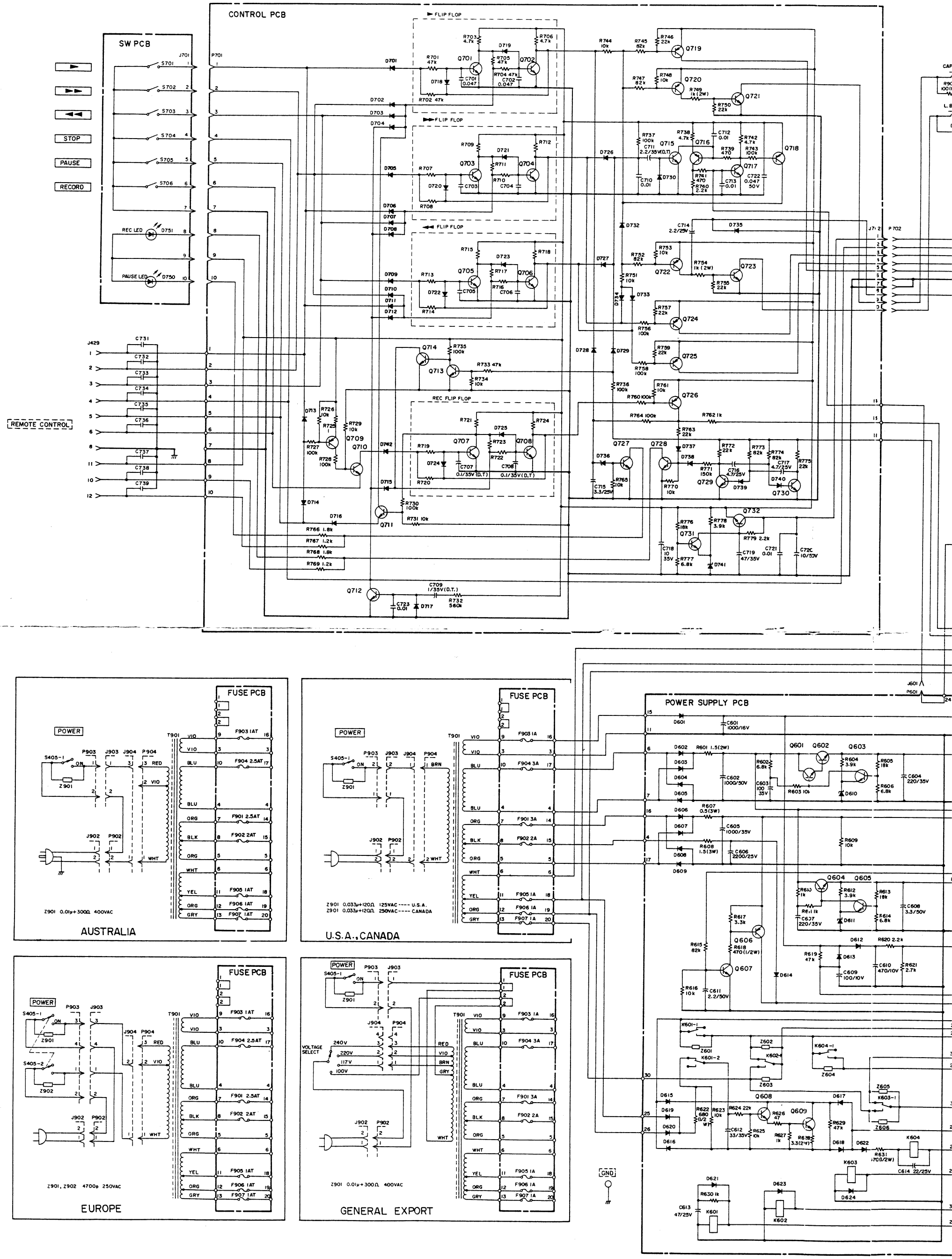
REF. NO.	PARTS NO.	DESCRIPTION
R742	50570980	4.7 k ohm
R743	50571300	100 k ohm
R744	50571060	10 k ohm
R745	50571280	22 k ohm
R746	50571140	22 k ohm
R747	50571280	82 k ohm
R748	50571060	10 k ohm
R749	50525870	1 k ohm 2W Metal Film
R750	50571140	22 k ohm
R751	50571060	10 k ohm
R752	50571280	82 k ohm
R753	50571060	10 k ohm
R754	50525870	1 k ohm 2W Metal Film
R755	50571140	22 k ohm
R756	50571300	100 k ohm
R757	50571140	22 k ohm
R758	50571300	100 k ohm
R759	50571140	22 k ohm
R760	50571300	100 k ohm
R761	50571060	10 k ohm
R762	50570820	1 k ohm
R763	50571140	22 k ohm
R764	50571300	100 k ohm
R765	50571060	10 k ohm
R766	50570880	1.8 k ohm
R767	50570840	1.2 k ohm
R768	50570880	1.8 k ohm
R769	50570840	1.2 k ohm
R770	50571060	10 k ohm
R771	50571340	150 k ohm
R772	50571140	22 k ohm
R773, R774	50571280	82 k ohm
R775	50571140	22 k ohm
R776	50571120	18 k ohm
R777	50571020	6.8 k ohm
R778	50570960	3.9 k ohm
R779	50570900	2.2 k ohm
	CAPACITORS	
C701~C706	50548270	Mylar 0.047 mfd 50V
C707, C708	50546641	Dip. Tant. 0.1 mfd 35V
C709	50546701	Dip. Tant. 1 mfd 35V
C710	50548020	Mylar 0.01 mfd 50V
C711	50546721	Dip. Tant. 2.2 mfd 35V
C712, C713	50542040	Ceramic 0.01 mfd 50V
C714	50554940	Elec. 2.2 mfd 25V
C715	50554220	Elec. 3.3 mfd 25V
C716, C717	50554530	Elec. 4.7 mfd 25V
C718	50554510	Elec. 10 mfd 35V
C719	50554520	Elec. 47 mfd 35V
C720	50554350	Elec. 10 mfd 50V
C721	50542040	Ceramic 0.01 mfd 50V
C722	50542300	Ceramic 0.047 mfd 50V
C723	50542040	Ceramic 0.01 mfd 50V
	MISCELLANEOUS	
J701	50438450	Connector, Socket; 10P
J702	51220120	Connector, Plug; 10P

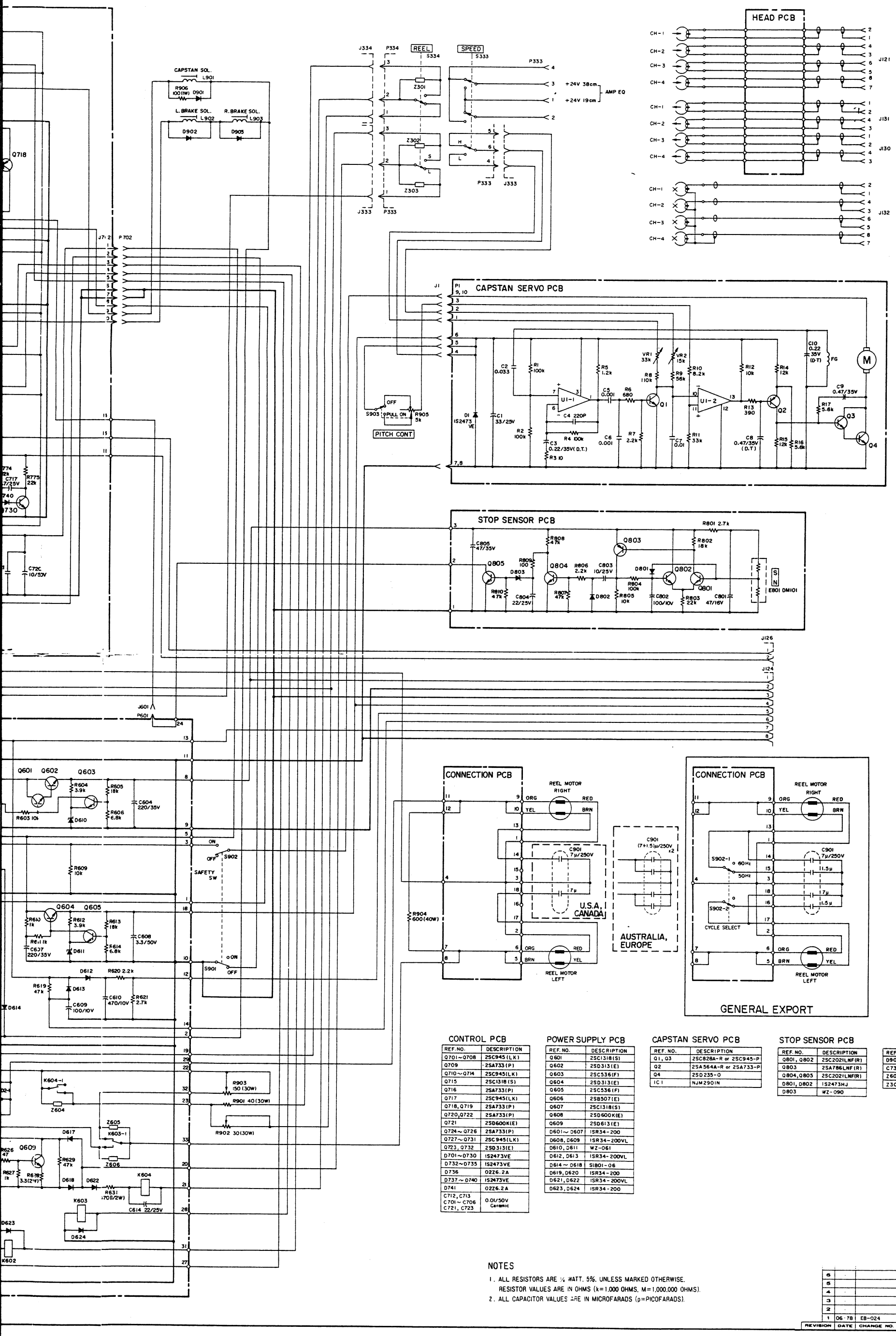
2-10. STOP SENSOR PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51687370	PCB Assy, STOP SENSOR
	51677370	PCB, STOP SENSOR
	TRANSISTORS	
Q801, Q802	51451210	2SC2021LNF R
Q803	51451230	2SA786LNF R
Q804, Q805	51451210	2SC2021LNF R
	DIODES	
D801, D802	51431180	1S2473HJ
D803	50425150	Zener, WZ-090
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and ¼ watt.	
R801	51812920	2.7 k ohm
R802	51813120	18 k ohm
R803	51813140	22 k ohm
R804	51813300	100 k ohm
R805	51813060	10 k ohm
R806	51812900	2.2 k ohm
R807, R808	51813220	47 k ohm
R809	51812580	100 ohm
R810	51813220	47 k ohm
	CAPACITORS	
C801	50554010	Elec. 47 mfd 16V
C802	50554570	Elec. 100 mfd 10V
C803	50554040	Elec. 10 mfd 25V
C804	50554950	Elec. 22 mfd 25V
C805	50554520	Elec. 47 mfd 35V
	MISCELLANEOUS	
E801	51431050	Magnetic Resistance Element, DM101
	51812080	Jumper, JPW02-F10 (1 used)

INCLUDED ACCESSORIES

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	51280930	Cord, Input-output Connection (x4)	
	RE-1002	Empty Reel, 10 inch	
	55980250	Reel Adapter, Clamp; TZ-612 (x2)	
	50629620	Splicing Tape	
	51016040	30-4 Owner's Manual	JAPAN
	51016050	A-3440 Owner's Manual	U.S.A.
	51016060	A-3440 Owner's Manual	All except JAPAN, U.S.A.


CONTROL PCB
SW PCB
FLIP FLOP
REC FLIP FLOP
REMOTE CONTROL
POWER SUPPLY PCB
FUSE PCB
POWER
AUSTRALIA
U.S.A., CANADA
EUROPE
GENERAL EXPORT
GND



CONTROL PCB

REF.NO.	DESCRIPTION
Q701~Q708	2SC945(LK)
Q709	2SA733(P)
Q710~Q714	2SC945(LK)
Q715	2SC1318(S)
Q716	2SA733(P)
Q717	2SC945(LK)
Q718, Q719	2SA733(P)
Q720, Q722	2SA733(P)
Q721	2SD600K(E)
Q724~Q726	2SA733(P)
Q727~Q731	2SC945(LK)
Q723, Q732	2SD313(E)
D701~D730	IS2473VE
D732~D735	IS2473VE
D736	0ZZ6.2A
D737~D740	IS2473VE
D741	0ZZ6.2A
C712, C713 C701~C706 C721, C723	0.01/50V Ceramic

POWER SUPPLY PCB

REF.NO.	DESCRIPTION
Q601	2SC1318(S)
Q602	2SD313(E)
Q603	2SC536(F)
Q604	2SD313(E)
Q605	2SC536(F)
Q606	2SB507(E)
Q607	2SC1318(S)
Q608	2SD600K(E)
Q609	2SD613(E)
D601~D607	ISR34-200
D608, D609	ISR34-200VL
D610, D611	WZ-061
D612, D613	ISR34-200VL
D614~D618	SIB01-06
D619, D620	ISR34-200
D621, D622	ISR34-200VL
D623, D624	ISR34-200

CAPSTAN SERVO PCB

REF.NO.	DESCRIPTION
Q1, Q3	2SC828A-R or 2SC945-P
Q2	2SA564A-R or 2SA733-P
Q4	2SD235-O
IC1	NJM2901N

STOP SENSOR PCB

REF.NO.	DESCRIPTION
Q801, Q802	2SC2021LNF(R)
Q803	2SA786LNF(R)
Q804, Q805	2SC2021LNF(R)
D801, D802	IS2473HJ
D803	WZ-090

REF.NO	DESCRIPTION
D901~D903	SIB01-06
C731~C739	0.01/50V
Z601~Z606	0.1/400V
Z301~Z303	0.1/400V

NOTES

1. ALL RESISTORS ARE ¼ WATT, 5%, UNLESS MARKED OTHERWISE.
   RESISTOR VALUES ARE IN OHMS (k=1,000 OHMS, M=1,000,000 OHMS).
2. ALL CAPACITOR VALUES ARE IN MICROFARADS (p=PICOFARADS).

REVISION	DATE	CHANGE NO.
6		
5		
4		
3		
2		
1	06·78	EB-024

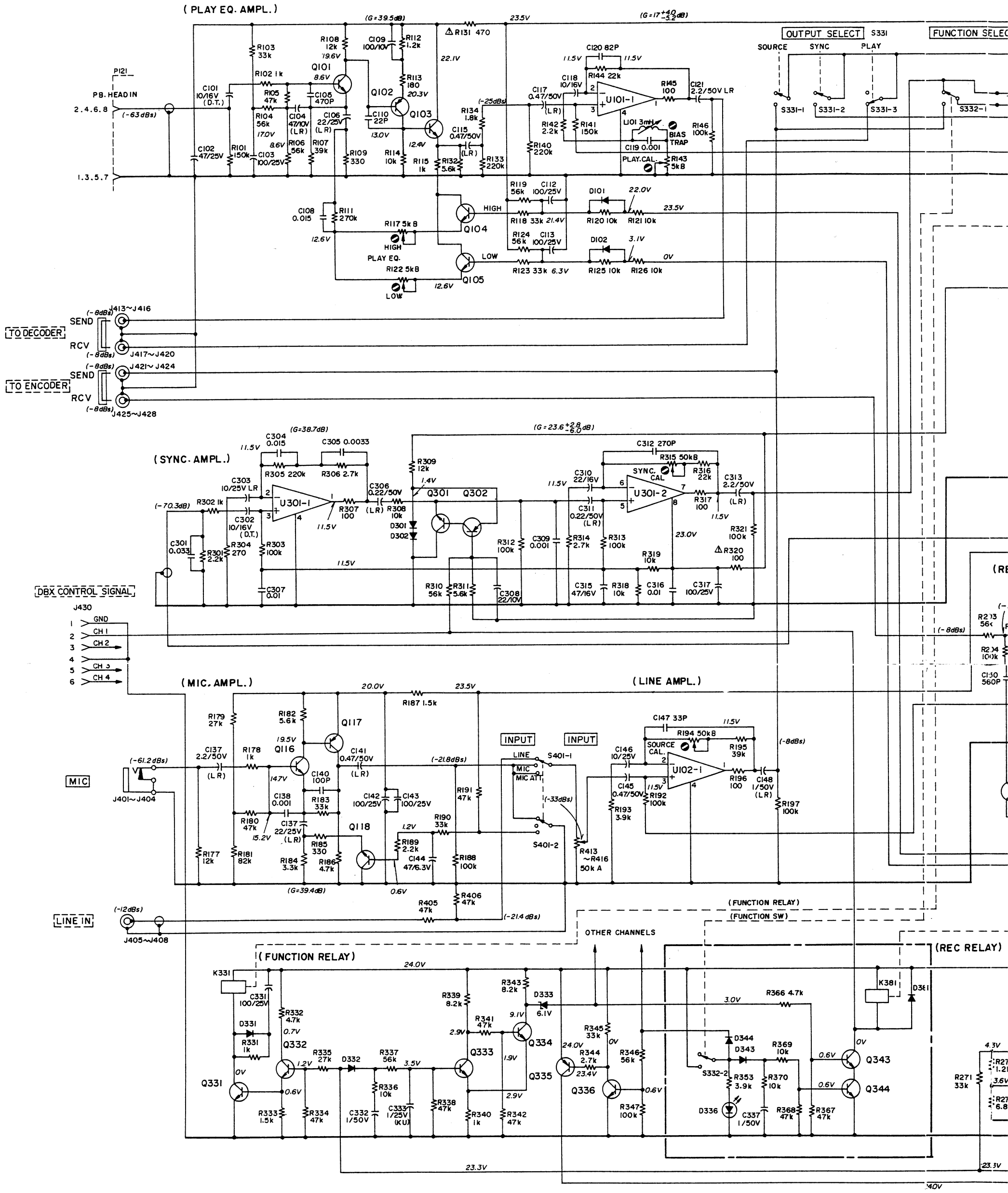
S-225

4-Channel Multitrack Tape Deck with SIMUL-SYNC

MODEL NO. A-3440 SHEET NO.

TEAC CORPORATION

A-0101



NOTES

SCHEMATIC DIAGRAM SHOWN IN THE STOP MODE.
OUTPUT SELECT SWITCH SHOWN IN THE PLAY POSITION.
TAPE SPEED SWITCH SHOWN IN THE HIGH POSITION.
ALL RESISTORS ARE RATED ±5% TOLERANCE AND 1/4 WATT AND OF CARBON TYPE UNLESS OTHERWISE NOTED.
ALL CAPACITORS VALUES IN MICROFARADS. P= PICOFARADS.
⚠ NON FLAMMABLE RESISTOR

REF.NO	DESCRIPTION
Q101	2SC1327T
Q102	2SA666IS
Q103	2SC536F
Q104	2SC1740LNS
Q105	2SC1740LNS
Q109	2SC1636-2
Q110	2SA826LNS
Q111	2SC1740LNS
Q112	2SA826LNS
Q116	2SC1222E

REF.NO	DESCRIPTION
Q117	2SA666IS
Q118	2SC1740LNS
Q121	2SC1740LNS
Q122	2SC1740LNS
Q123	2SC1740LNS
Q241	2SC1740LNS
Q242	2SC1740LNS
Q243	2SC2060Q
Q244	2SA934Q
Q271	2SC1740LNS

REF.NO	DESCRIPTION
Q272	2SC2060Q
Q273	2SC1226AR
Q274	2SC1226AR
Q301	2SC1740LNS
Q302	2SA826LNS
Q331	2SC2060Q
Q332	2SC536F
Q333	2SC536F
Q334	2SC536F
Q335	2SA733P

REF.NO	DESCRIPTION
Q336	2SC536F
Q343	2SC536F
Q344	2SC536F
U101,U102	NJM4558DF
U301	NJM4558DD
D101, D102	IS247:HJ
D106, D107	IN60
D241, D242	IS247:HJ
D301, D302	IS247:VE

REF.NC
D331, D381
D332
D333
D344
D343
D336

(PLAY LINE AMPL.)

(METER AMPL.)

SELECT S331

FUNCTION SELECT

PLAY

(-8dBs)

S331-2

S331-3

K331-1

S332-1

23.5V

OUTPUT

C124 100P

11.5V 11.5V 11.5V

C123 10/25V

R150 15k

R401~R404 100k A

C122 1/50V

U101-2

R151 100

C125 10/25V

R156 1k

R148 6.8k

R147 82k

R155 100k

⚠R154 100

(-14dBs)

11.5V

R153 10k

OUTPUT CAL.

R149 20kB

C126 47/16V

R152 10k

C127 100/25V

23.0V

Q109

R157 560

Q110

R158 100k

5.2V

3.5V

R159 100kB

M.T CAL

R160 100k

R163 22k

23.5V

23.0V

Q112

13.2V

Q111

C128 1/50V

2.5V

C130 2.2/50V

R162 100k

R164 2.2k

R166 1.2k

D107

2.0V

D106

2.5V

R161 12k

C129 220/6.3V

R165 390

C131 0.001

C132 22/10V

R167 1.2k

(-8dBs)/10kΩ

J409~J412

OUTPUT

M401~M404

(PHONE AMPL. UNIT)

23.5V

MONITOR

(-8dBs)

R241 100k

S241

CH-1

CH-2

CH-3

CH-4

R242 100k

R243 100k

R244 100k

R245 56k

1.0V

C247 47P

R247 5.6k

9.8V

Q241

C241 1/50V

C242 1/50V

0.4V

R246 6.8k

R248 180

R249 50kA

R250 18k

C243 1/50V

0.6V

MONITOR

R251 22k

22.0V

⚠R252 470

R253 2.2k

Q243

10.6V

C244 47/25V

D241

D242

R255 8.2

C246 100/25V

R254 220k

10.0V

R257 39(1/2W)

C245 22P

R256 8.2

9.4V

Q242

Q244

R258 1k

PHONES

(MONO)

J241

(-18.9dBs)/4.1Ω

(PHONE AMPL. UNIT)

G=25dB

23.5V

(REC.AMPL.)

11.5V

R214 22k

C155 0.15

R215 15k

11.5V

T.P

L103 3mH

BIAS TRAP

(-13.4dBs)

R203 56k

REC. LEVEL

R205 56k

C151 1/50V

(-8dBs)

U102-2

R216 100

C156 10/16V (LR)

R218 1.5k

C157 820P

(-12.5dBs)

REC BIAS

C381 100P

REC. RELAY

K381-1

K381-2

P130 P131

1.4 REC. HEAD

2.4.6.8 ERASE. HEAD

1.3.5.7

P132

BIAS CURRENT 2.2mA

REC. CURRENT 110μA

ERASE VOLTAGE 57V

R204 100k

R206 5kB

C152 47/25V

L102 1.5mH/2.4mH

R229 100

C130 560P

R207 3.3k

R208 100k

R209 1.8k

R211 330

R210 100

R217 220k

R228 10k

23.0V

DUMMY

L381 3mH

C154 0.0068/50V

C153 0.018/50V

C160 47/16V

R227 10k

C161 100/25V

C158 1/50V

3.2V

HIGH

LOW

3.2V

C159 47/16V

Q121

Q123

Q122

R219 10k

R223 220k

4.0V

0V

R221 220k

R225 820

R226 10k

3.2V

R220 10k

R224 22k

R222 22k

SPEED

S333-1

HIGH

LOW

S333-2

HI 23.5V

LOW 0V

P124

POWER MUTE(B) 6

POWER MUTE(E) 5

VU LAMP+7V 7

VU LAMP 0V 8

AMP +24V 1

AMP 0V (GND) 2

(REC. RELAY)

(REC RELAY)

K381

D381

0V

Q343

Q344

(BIAS OSC)

⚠R279 10

R276 12k

13.7V

3.2V

Q271

2.6V

R277 2.2k

Q272

4.3V

R274 33k

R272 1.2k

3.6V

R271 33k

R273 6.8k

C271 22/16V (KU)

R275 100k

0.6V

R278 10k

C272 47/35V

R280 2.2k(1/2W)

C273 0.0033

Q273

R284 22(1/2W)

(100KHZ 57V)

L271

R281 4.7k (1/2W)

0.9V

C274 0.0056

R285 22 (1/2W)

Q274

R282 4.7 (1/2W)

C275 0.0033

R283 100

0.1V

C276 0.0042

+24V

0V

P124

4 RELAY +B

3 RELAY 0V

P126

23.3V

1 REC. SIGNAL

2 REC. MODE

TO CONTROL

4.0V

REF. NO	DESCRIPTION
Q336	2SC535F
Q343	2SC535F
Q344	2SC535F
U101,U102	NJM4558DF
U301	NJM4558DD
D101, D102	IS247HJ
D106, D107	IN60
D241, D242	IS247HJ
D301, D302	IS247VE

REF. NO	DESCRIPTION
D331, D381	ISR34-200
D332	IS2473VE
D333	WZ-061
D344	IS2473VE
D343	IS2473VE
D336	SLP-1148

REVISION	DATE	CHANGE NO.
6	·	
5	·	
4	·	
3	·	
2	·	
1	06·78	EB-024

S-226

4-Channel Multitrack Tape Deck with SIMUL-SYNC

MODEL NO. A-3440

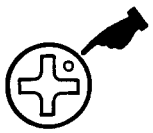
SHEET NO.

TEAC CORPORATION

A.0101

ASSEMBLING HARDWARE CODING LIST

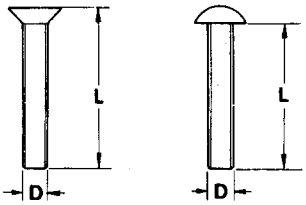
All screws conform to ISO standards, and have crossrecessed heads, unless otherwise noted.
ISO screws have the head inscribed with a point as in the figure to the right.



FOR EXAMPLE:

B M 3 x 6

- Length in mm (L)
- Diameter in mm (D) *
- Metric System
- Nomenclature



* Inner dia. for washers and nuts

	Code	*Name*	*Type*
MACHINE SCREW	**R**	Round Head Screw	
	P	Pan Head Screw	
	T	Stove Head Screw (Truss)	
	B	Binding Head Screw	
	F	Flat Countersunk Head Screw	
	O	Oval Countersunk Head Screw	
WOOD SCREW	**RW**	Round Head Wood Screw	
	FW	Flat Countersunk Wood Screw	
	OW	Oval Countersunk Wood Screw	
SEMS SCREW	**BSA**	Binding Head SEMS Screw(A Type)	
	BSB	Binding Head SEMS Screw(B Type)	
	BSF	Binding Head SEMS Screw(F Type)	
	PSA	Pan Head SEMS Screw(A Type)	
	PSB	Pan Head SEMS Screw(B Type)	

	Code	*Name*	*Type*
TAPPING SCREW	**BTA**	Binding Head Tapping Screw(A Type)	
	BTB	Binding Head Tapping Screw(B Type)	
	RTA	Round Head Tapping Screw(A Type)	
	RTB	Round Head Tapping Screw(B Type)	
SETSCREW	**SF**	Hex Socket Setscrew(Flat Point)	
	SC	Hex Socket Setscrew(Cup Point)	
	SS	Slotted Socket Setscrew(Flat Point)	
WASHER	**E**	E-Ring (Retaining Washer)	
	W	Flat Washer (Plain)	
	SW	Lock Washer (Spring)	
	LWI	Lock Washer (Internal Teeth)	
	LWE	Lock Washer (External Teeth)	
	TW	Trim Washer (Countersunk)	
NUT	**N**	Hex Nut	